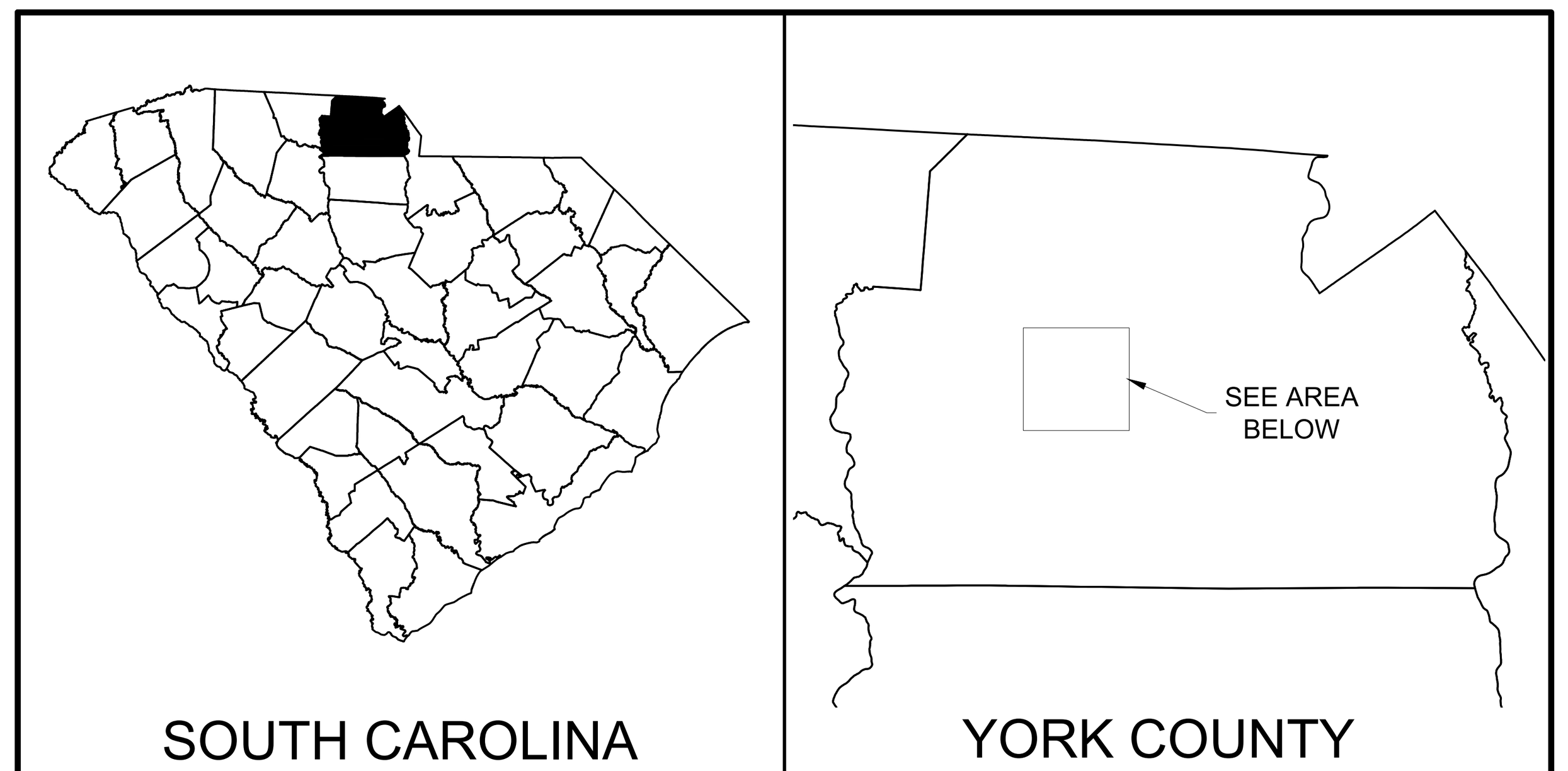
CONSTRUCTION PLANS

FOR

CALDWELL LAKE DAM IMPROVEMENTS

YORK, YORK COUNTY, SOUTH CAROLINA

Sheet List Table	
Sheet Number	Sheet Title
1	COVER
2	OVERVIEW PLAN
3	PLAN VIEW - EMERGENCY SPILLWAY
4	EROSION & SEDIMENTATION CONTROL PLAN
5	PLAN & PROFILE 1
6	PLAN & PROFILE 2
7	PLAN & PROFILE 3
8	PLAN & PROFILE 4
9	EROSION & SEDIMENTATION CONTROL DETAILS - 1
10	EROSION & SEDIMENTATION CONTROL DETAILS - 2
11	EROSION & SEDIMENTATION CONTROL DETAILS - 3
12	PRINCIPAL SPILLWAY DETAILS
13	EMERGENCY SPILLWAY DETAILS
14	SPECIFICATIONS
15	EXISTING PRINCIPAL SPILLWAY - 1
16	EXISTING PRINCIPAL SPILLWAY - 2



VICINITY MAP SCALE: N.T.S.

VICINITY MAP SCALE: N.T.S.

CONTACT INFORMATION
OWNER/DEVELOPER
CITY OF YORK
PO BOX 500
10 N. ROOSEVELT ST. YORK, SC 29745

SURVEYOR
AVIOIMAGE MAPPING SERVICES, INC.
4600 LEBANON ROAD; SUITE E
CHARLOTTE, NC 28227
704-573-7080
ENGINEER
SHIELD ENGINEERING, INC.
4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
(704) 394-6913
CLIENT CONTACT
MR. BEN WRIGHT
(803) 792-2620

DISTURBED AREA = 3.46 AC.

CITY OF YORK
PO BOX 500
10 N. ROOSEVELT ST. YORK, SC 29745

REVISIONS

REV.	DATE	COMMENTS

PROJECT #	1210035-01
DATE:	DECEMBER, 2022
DESIGN BY:	DW
DRAWN BY:	DW
APPROVED:	KAA
SCALE:	N.T.S.

CDG
4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
Phone: 704-394-6913
www.cdge.com
License No. C-4973

SOUTH CAROLINA C.O.A. SEAL:
SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION CDG, INC. No. 20101031

ENGINEER'S SEAL:
SOUTH CAROLINA PROFESSIONAL ENGINEER No. 27260
3-22-23

CALDWELL LAKE DAM IMPROVEMENTS
CALDWELL LAKE DAM
YORK, YORK COUNTY, SOUTH CAROLINA

SHEET TITLE: COVER

DRAWING NO: 1

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1"=50'

GRAPHIC SCALE

160 0 80 160 320 640

(IN FEET)
1"=640'

NOTE; THE ACCESS ROAD LEADING TO THE WORK AREA FROM THE PUBLIC ROAD (CALLIFORNIA ROAD) MAY NEED TO BE UPGRADED WITH GEOTEXTILE FABRIC AND/OR GRAVEL TO MAINTAIN TRAVEL WAY STABILITY. WHETHER THE GRAVEL IS NECESSARY OR NOT, A CONSTRUCTION ENTRANCE IS TO BE PLACED AT THE EDGE OF CALIFORNIA ROAD. SEE THE SWPPP AND DRAWING #9 OF THESE CONSTRUCTION DRAWINGS FOR FURTHER DETAILS.,

CITY OF YORK
PO BOX 500
10 N. ROOSEVELT ST. YORK, SC 29745

REVISIONS

REV.	DATE	COMMENTS

PROJECT # 1210035-01
DATE: DECEMBER, 2022
DESIGN BY: DW
DRAWN BY: DW
APPROVED: KAA
SCALE: AS SHOWN

CDG
4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
Phone: 704-394-6913
www.cdgw.com
License No. C-4973

SOUTH CAROLINA C.O.A. SEAL:
SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
CDG, INC.
No. 2010103

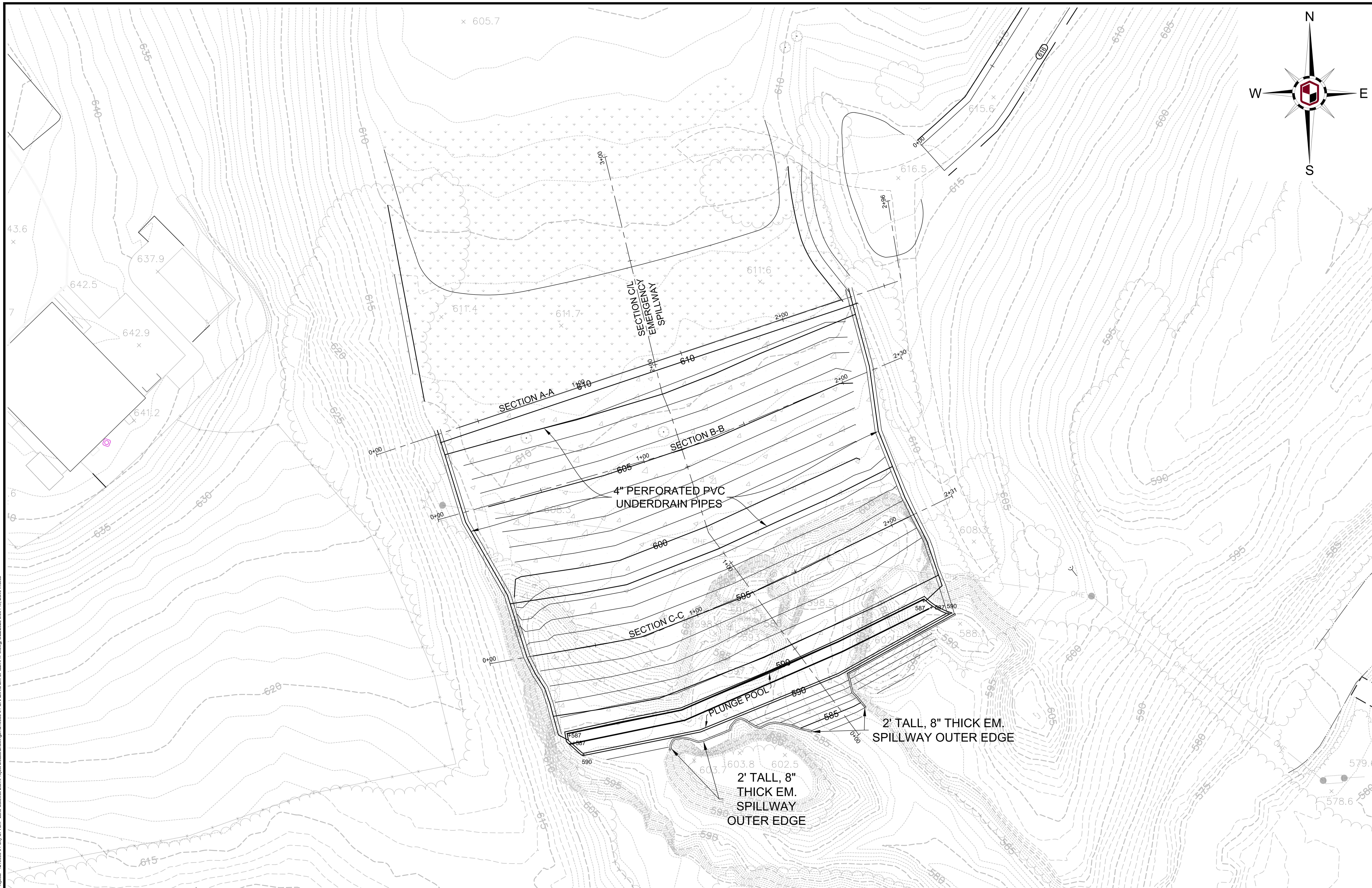
ENGINEER'S SEAL:
SOUTH CAROLINA PROFESSIONAL ENGINEER
No. 21760

CALDWELL LAKE DAM IMPROVEMENTS
CALDWELL LAKE DAM
YORK, YORK COUNTY, SOUTH CAROLINA

SHEET TITLE: OVERVIEW PLAN

DRAWING NO: 2

C:\Users\dave.weikel\CDG, Inc\Charlotte Projects - 1210035-01 City Of York - Lake Caldwell Dam\Project Details\Drawings\1210035-01 OVERVIEW.dwg, 3/22/2023 3:03 PM, Dave Weikle



LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- OVERHEAD ELECTRIC
- PROPOSED CONCRETE
- PROPOSED GRASS SEED / MATTING
- TREELINE

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1"=20'

C:\Users\dave.weikle\CDG, Inc\Charlotte Projects - 1210035-01 City Of York - Lake Caldwell Dam\Project Details\Drawings\1210035-01 GRADING EM SPILLWAY 8.dwg, 3/22/2023 3:09 PM, Dave Weikle

CITY OF YORK
PO BOX 500
10 N. ROOSEVELT ST.
YORK, SC 29745

REVISIONS

REV.	DATE	COMMENTS

PROJECT #	1210035-01
DATE:	DECEMBER, 2022
DESIGN BY:	DW
DRAWN BY:	DW
APPROVED:	KAA
SCALE:	1" = 20'

CDG
4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
Phone: 704-394-6913
www.cdge.com
License No. C-4973

SOUTH CAROLINA C.O.A. SEAL:
SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
CDG, INC.
No. 20101031

ENGINEER'S SEAL:
SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 27260
3-22-23

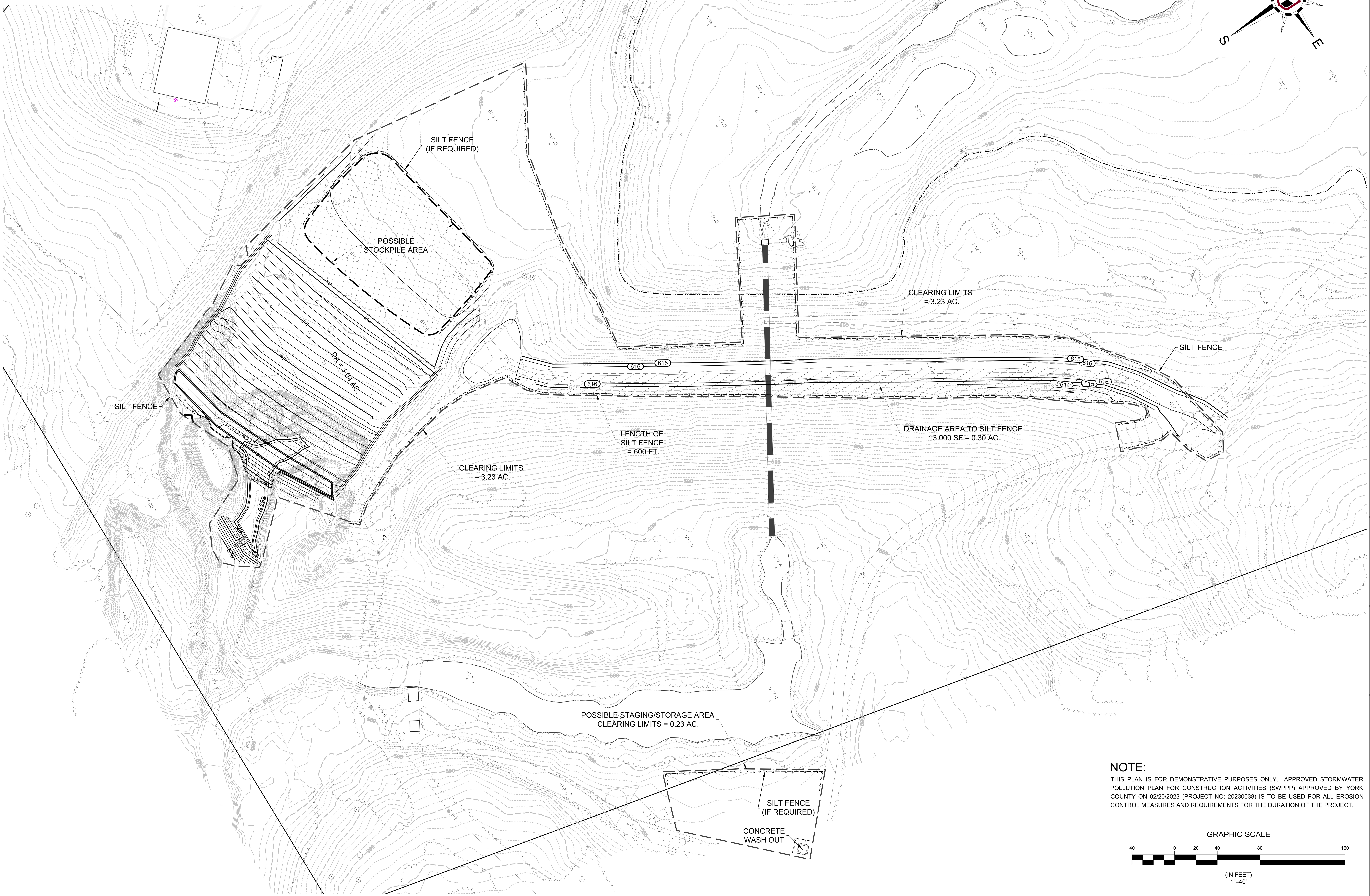
CALDWELL LAKE DAM IMPROVEMENTS
CALDWELL LAKE DAM
YORK, YORK COUNTY, SOUTH CAROLINA

SHEET TITLE: PLAN VIEW - EMERGENCY SPILLWAY

DRAWING NO: 3

LEGEND:

TEMPORARY SILT FENCE —X—X—X—X—X—
CLEARING LIMITS — — — — —
ROCK CHECK DAM / SEDIMENT WATTLE ^



NOTE:

THIS PLAN IS FOR DEMONSTRATIVE PURPOSES ONLY. APPROVED STORMWATER POLLUTION PLAN FOR CONSTRUCTION ACTIVITIES (SWPPP) APPROVED BY YORK COUNTY ON 02/20/2023 (PROJECT NO: 20230038) IS TO BE USED FOR ALL EROSION CONTROL MEASURES AND REQUIREMENTS FOR THE DURATION OF THE PROJECT.

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1"=40'

CITY OF YORK
PO BOX 500
10 N. ROOSEVELT ST.
YORK, SC 29745

REVISIONS

REV.	DATE	COMMENTS

PROJECT #	1210035-01
DATE:	DECEMBER, 2022
DESIGN BY:	DW
DRAWN BY:	DW
APPROVED:	KAA
SCALE:	1" = 40'

CDG
4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
Phone: 704-394-6913
www.cdge.com
License No. C-4973

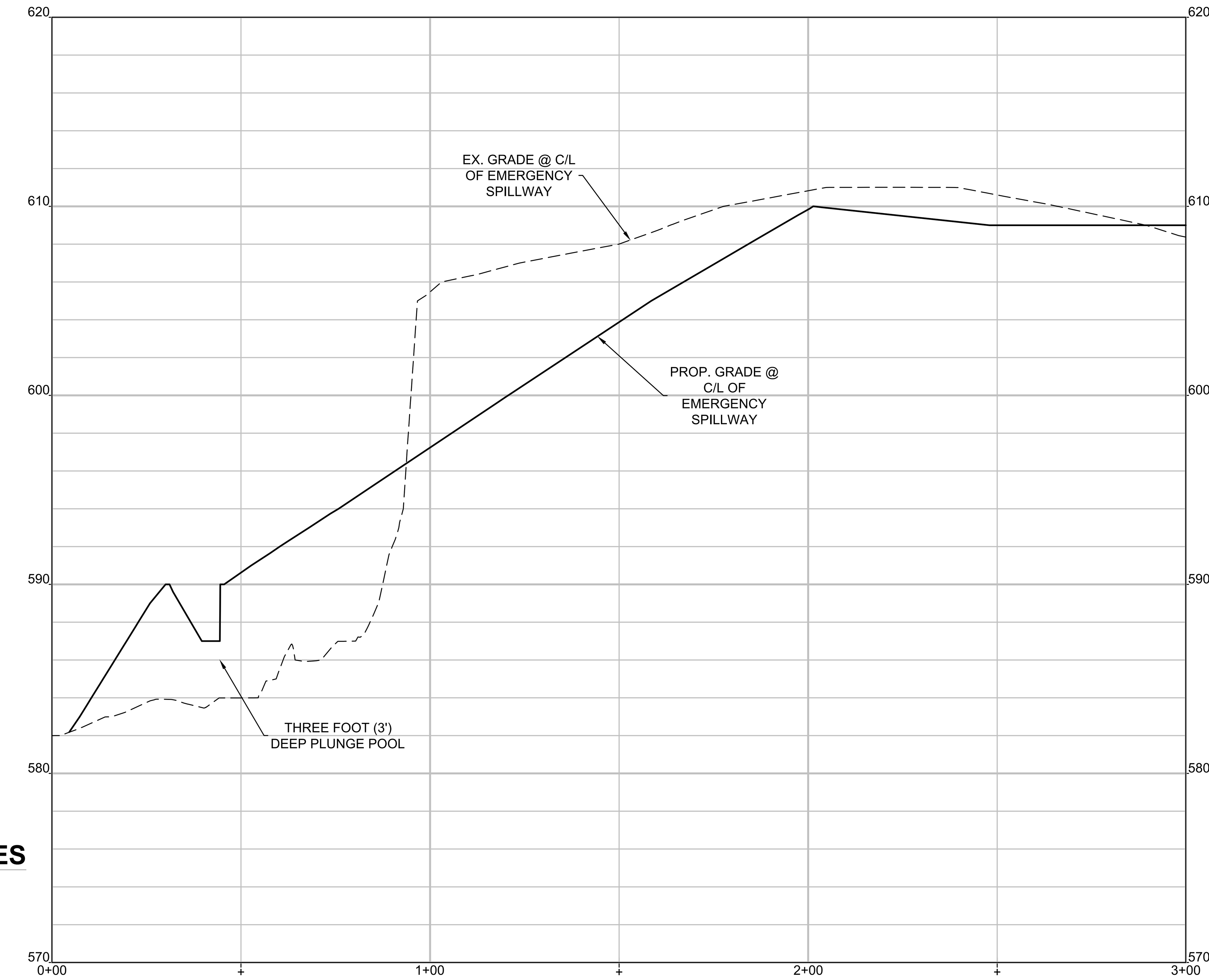
SOUTH CAROLINA C.O.A. SEAL:
SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION CDG, INC. No. 20101031

ENGINEER'S SEAL:
SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 27260
3-22-23

CALDWELL LAKE DAM IMPROVEMENTS
CALDWELL LAKE DAM
YORK, YORK COUNTY, SOUTH CAROLINA

SHEET TITLE:
EROSION & SEDIMENTATION CONTROL PLAN

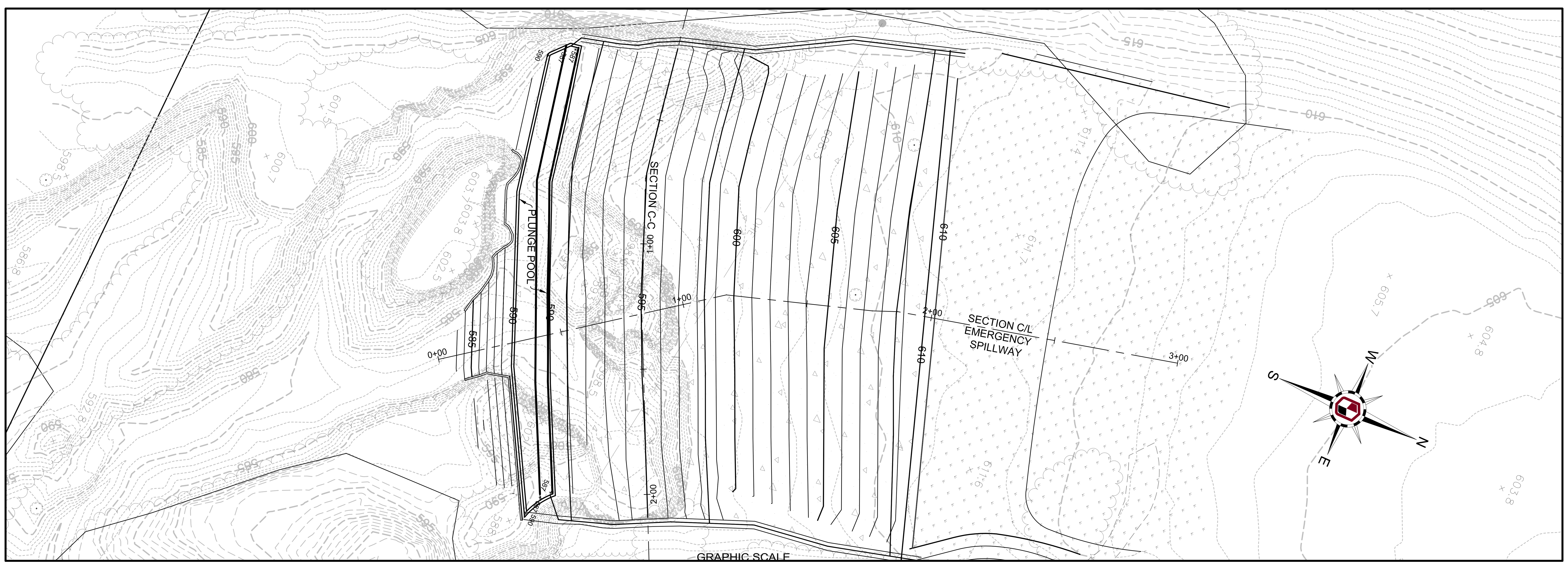
DRAWING NO: 4



PROFILE SCALES

H: 1" = 25'
V: 1" = 5'

PROFILE EMERGENCY SPILLWAY CENTERLINE



GRAPHIC SCALE

25 0 12.5 25 50 100

(IN FEET)
1"=25'

CITY OF YORK
PO BOX 500
10 N. ROOSEVELT ST.
YORK, SC 29745

REVISIONS

REV.	DATE	COMMENTS

PROJECT #	1210035-01
DATE:	DECEMBER, 2022
DESIGN BY:	DW
DRAWN BY:	DW
APPROVED:	KAA
SCALE:	AS SHOWN

CDG
4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
Phone: 704-394-6913
www.cdge.com
License No. C-4973

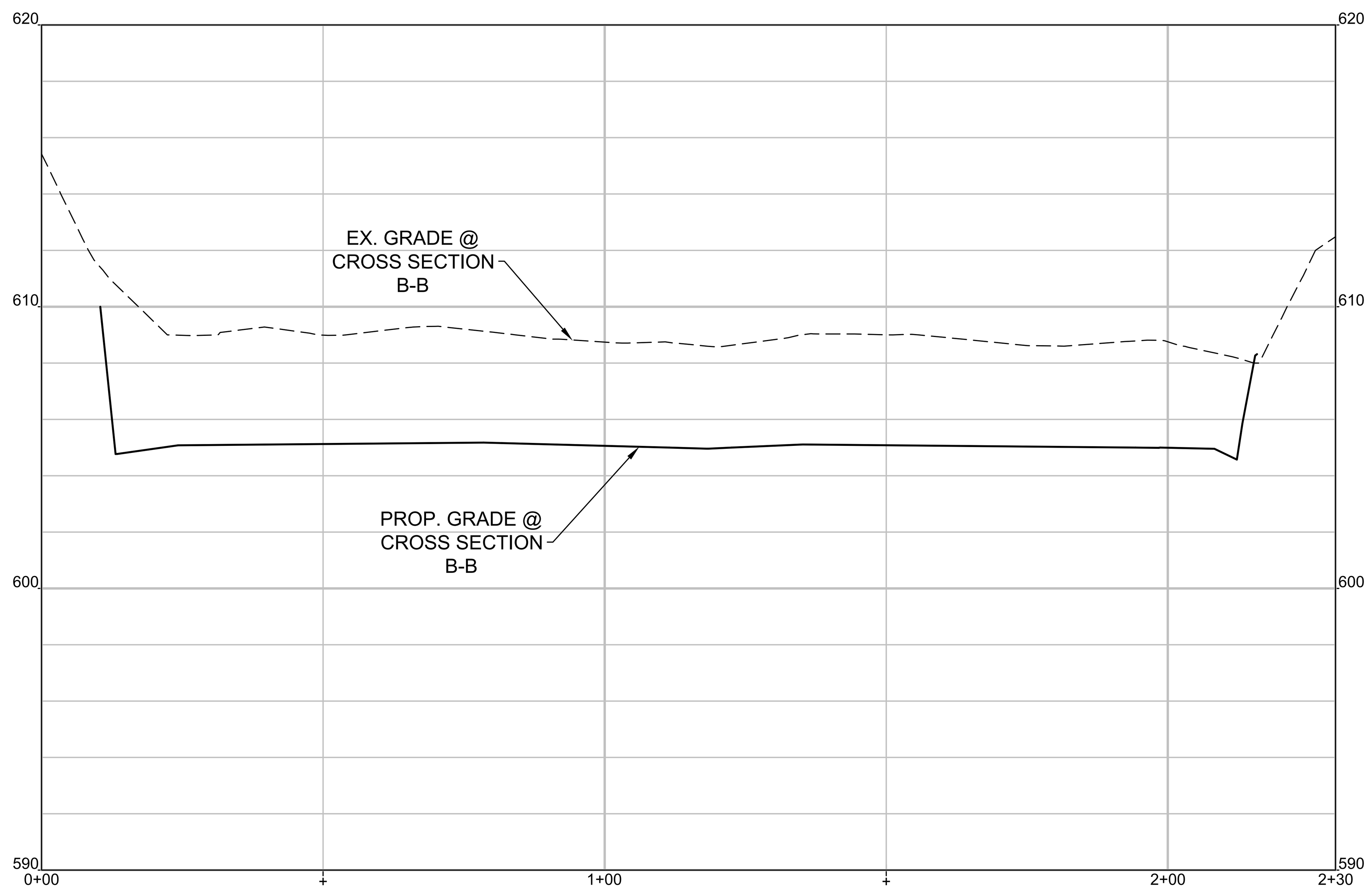
SOUTH CAROLINA C.O.A. SEAL:
SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION CDG, INC. No. 20101031

ENGINEER'S SEAL:
SOUTH CAROLINA PROFESSIONAL ENGINEER No. 27260 LICENSED DAVID WEIKLE
3-22-23

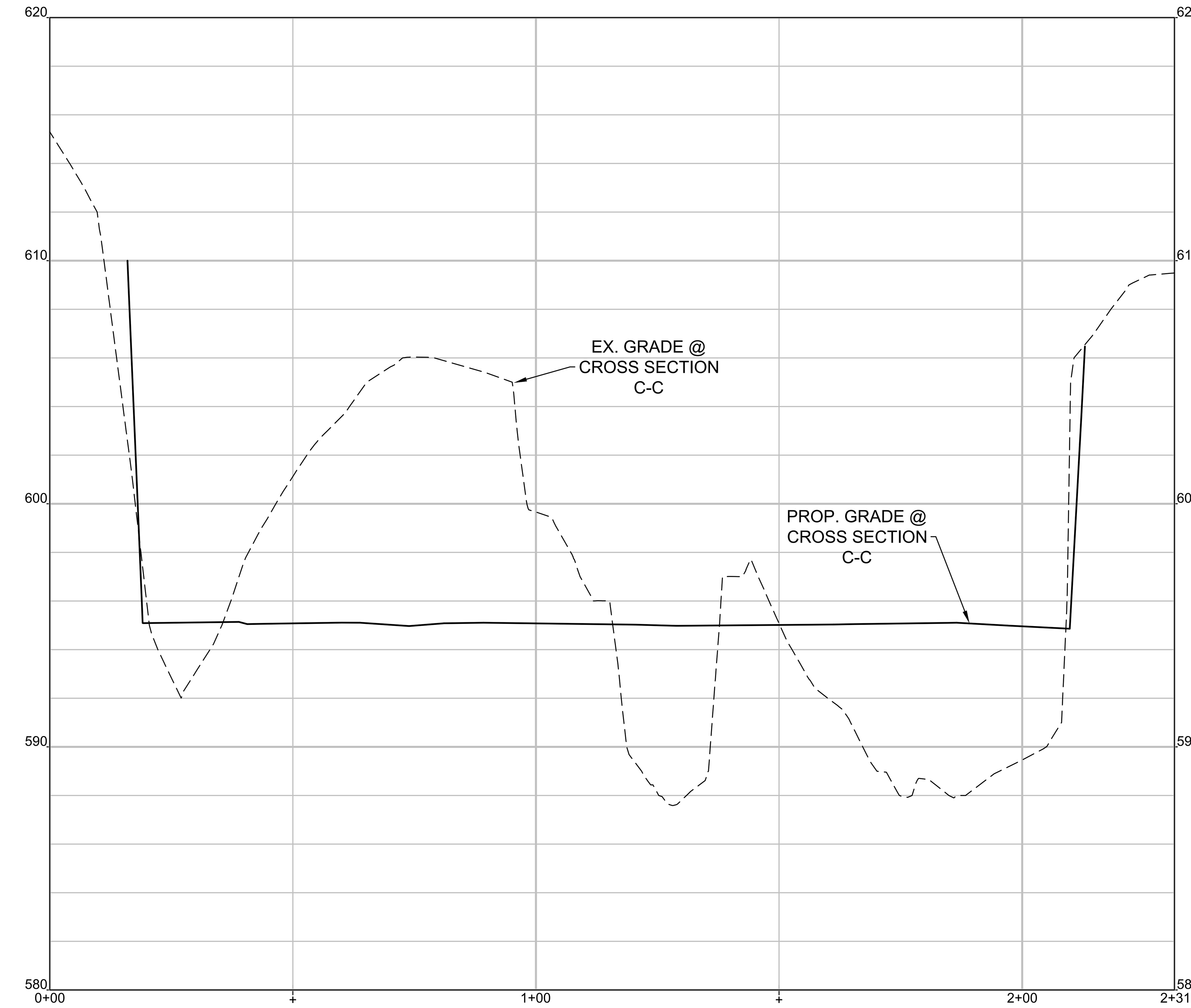
CALDWELL LAKE DAM IMPROVEMENTS
CALDWELL LAKE DAM
YORK, YORK COUNTY, SOUTH CAROLINA

SHEET TITLE: PLAN & PROFILE 1

DRAWING NO: 5



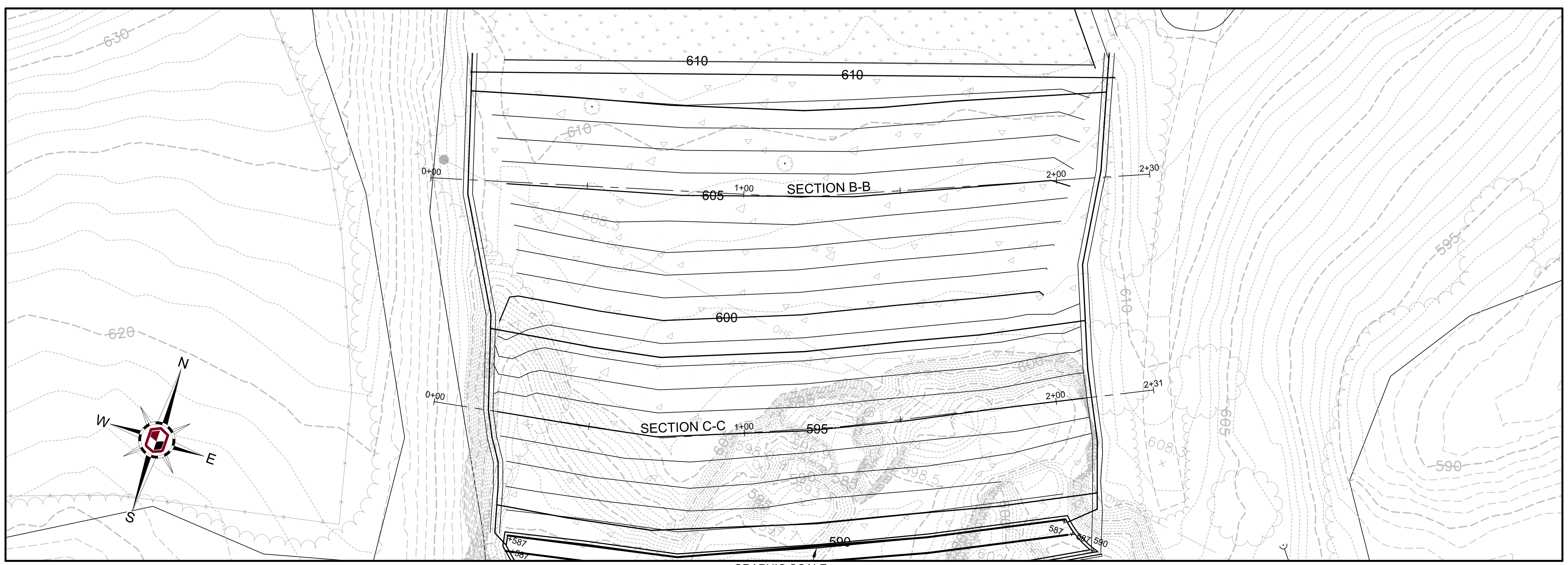
PROFILE SECTION B-B



PROFILE SECTION C-C

PROFILE SCALES

H: 1" = 20' V: 1" = 4'



GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1"=20'

C:\Users\dave.weikle\CDG, Inc\Charlotte Projects - 1210035-01 City Of York - Lake Caldwell Dam\Project Details\Drawings\1210035-01 PROFILES.dwg, 3/22/2023 3:03 PM, Dave Weikle

CITY OF YORK
PO BOX 500
10 N. ROOSEVELT ST.
YORK, SC 29745

REVISIONS

REV.	DATE	COMMENTS

PROJECT #	1210035-01
DATE:	DECEMBER, 2022
DESIGN BY:	DW
DRAWN BY:	DW
APPROVED:	KAA
SCALE:	AS SHOWN

CDG
4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
Phone: 704-394-6913
www.cdge.com
License No. C-4973

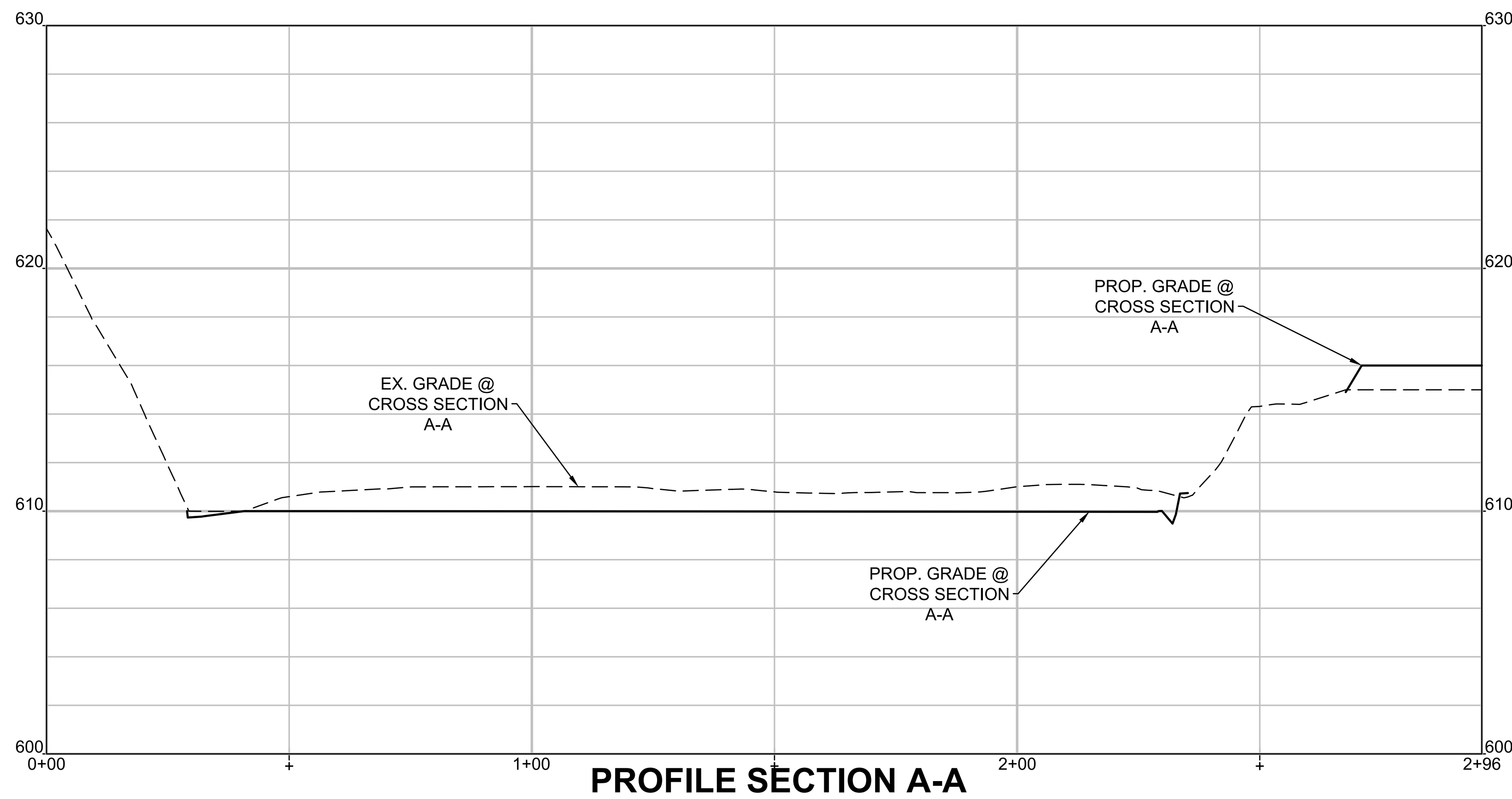
SOUTH CAROLINA C.O.A. SEAL:
SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION CDG, INC. No. 20101031

ENGINEER'S SEAL:
SOUTH CAROLINA PROFESSIONAL ENGINEER No. 27260
3-22-23

CALDWELL LAKE DAM IMPROVEMENTS
CALDWELL LAKE DAM
YORK, YORK COUNTY, SOUTH CAROLINA

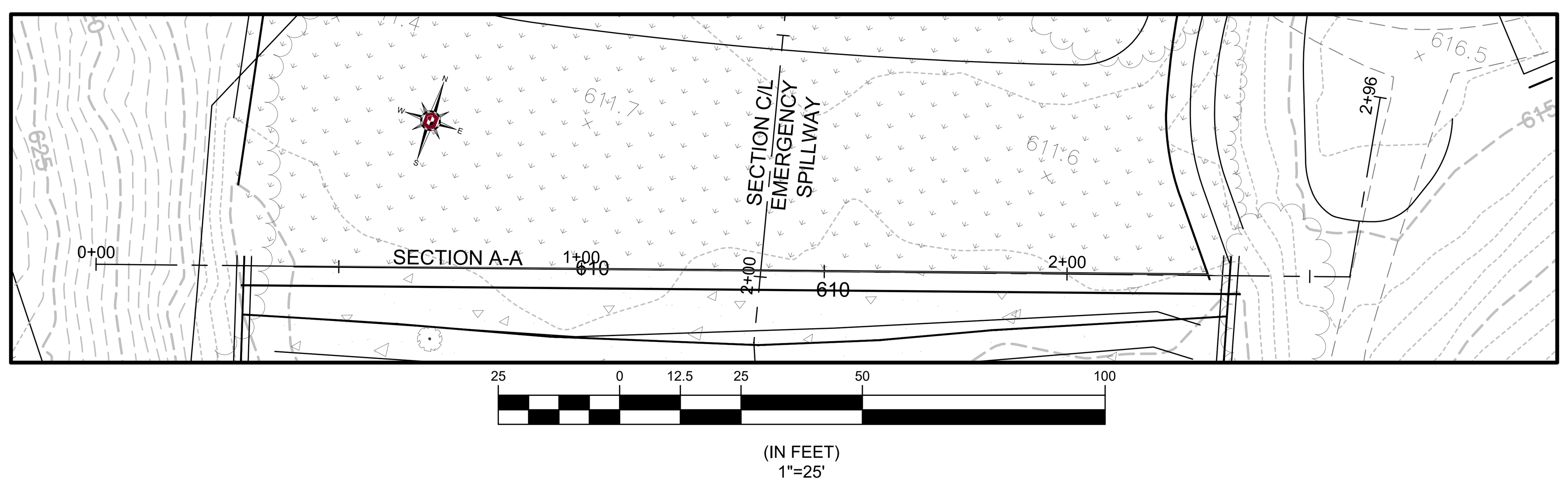
SHEET TITLE: PLAN & PROFILE 2

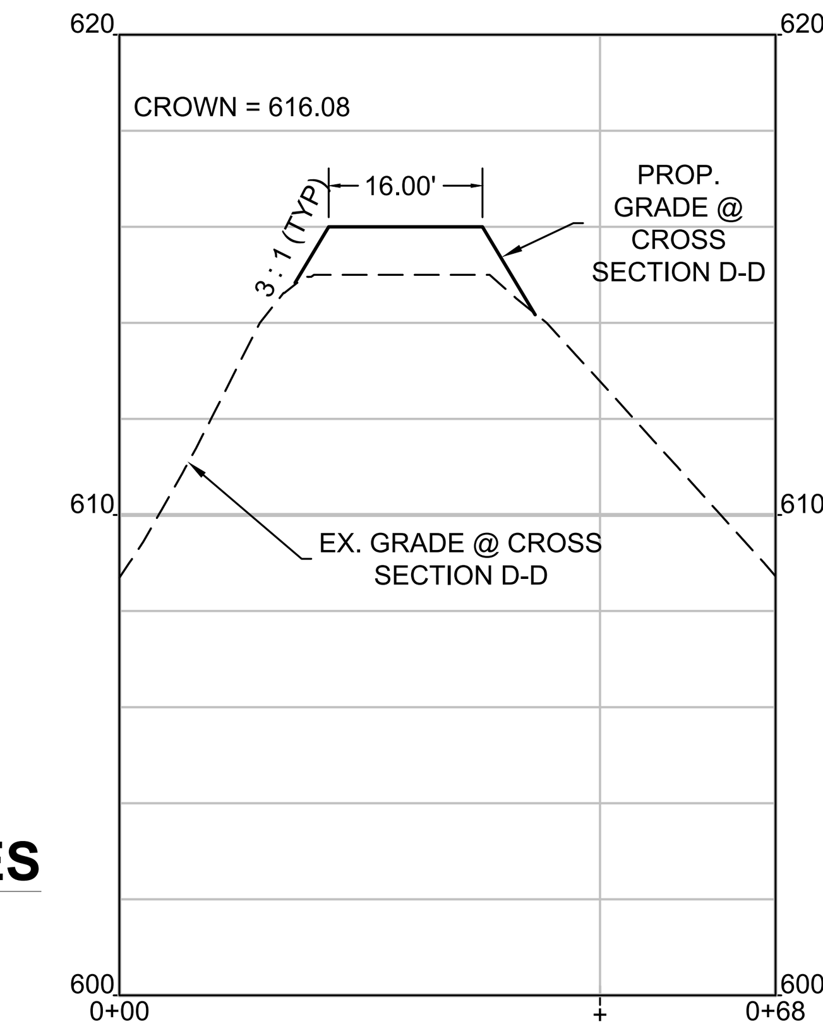
DRAWING NO: 6



PROFILE SCALES
H: 1" = 25'
V: 1" = 5'

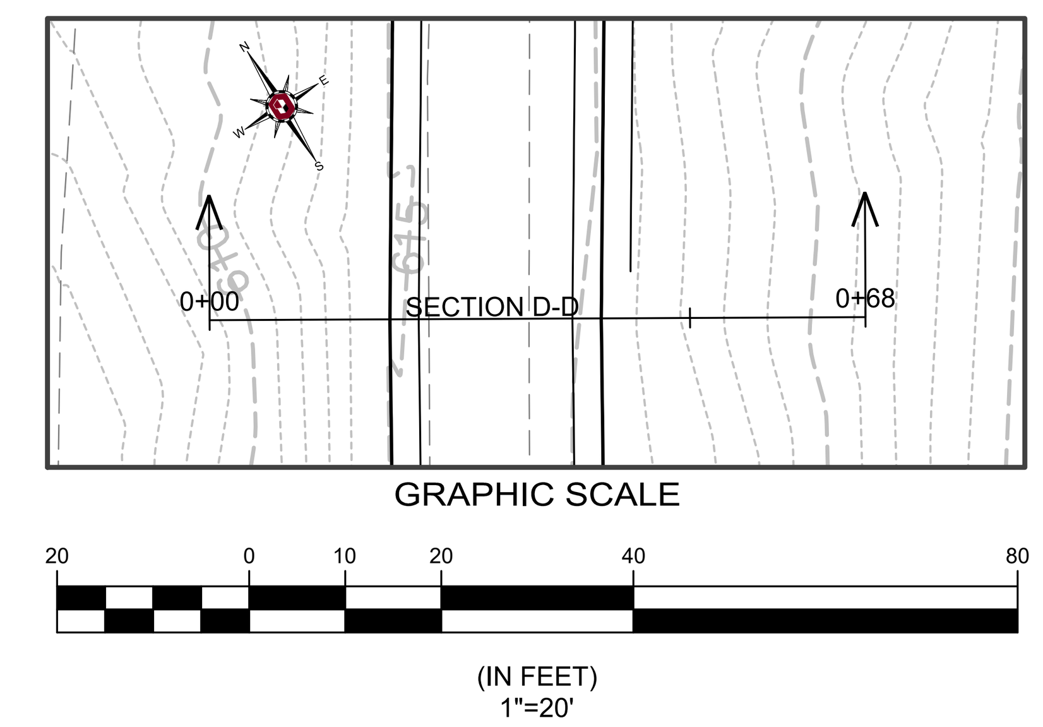
PROFILE SECTION A-A





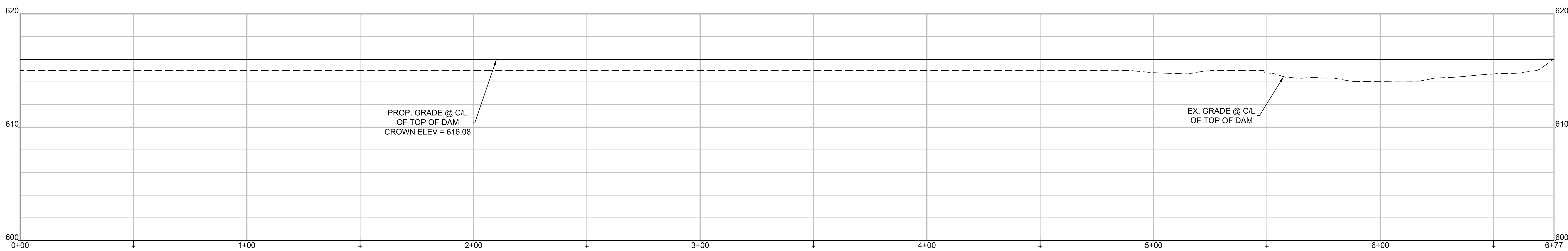
PROFILE SCALES
H: 1" = 20'
V: 1" = 4'

PROFILE SECTION D-D



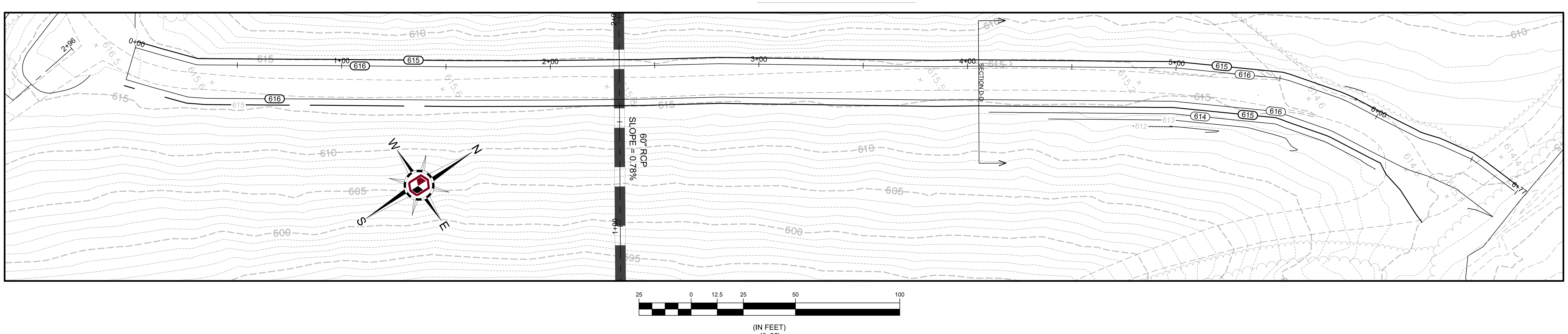
NOTE

AFTER FINISH GRADE HAS BEEN ESTABLISHED ON THE TOP OF DAM, APPLY NORTH AMERICAN GREEN SC-250 VMAX PERMANENT TURF REINFORCEMENT MATTING. SEE INSTALLATION DETAIL ON DRAWING #10.



PROFILE SCALES
H: 1" = 25'
V: 1" = 5'

PROFILE TOP OF DAM



CITY OF YORK
PO BOX 500
10 N. ROOSEVELT ST.
YORK, SC 29745

REVISIONS

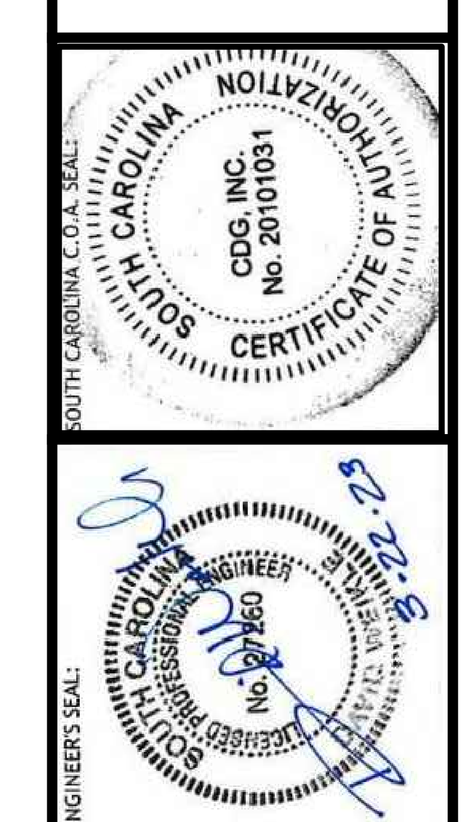
REV.	DATE	COMMENTS

PROJECT #	1210035-01
DATE:	DECEMBER, 2022
DESIGN BY:	DW
DRAWN BY:	DW
APPROVED:	KAA
SCALE:	AS SHOWN

CDG
4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
Phone: 704-394-6913
www.cdge.com
License No. C-4973

SOUTH CAROLINA C.O.A. SEAL:

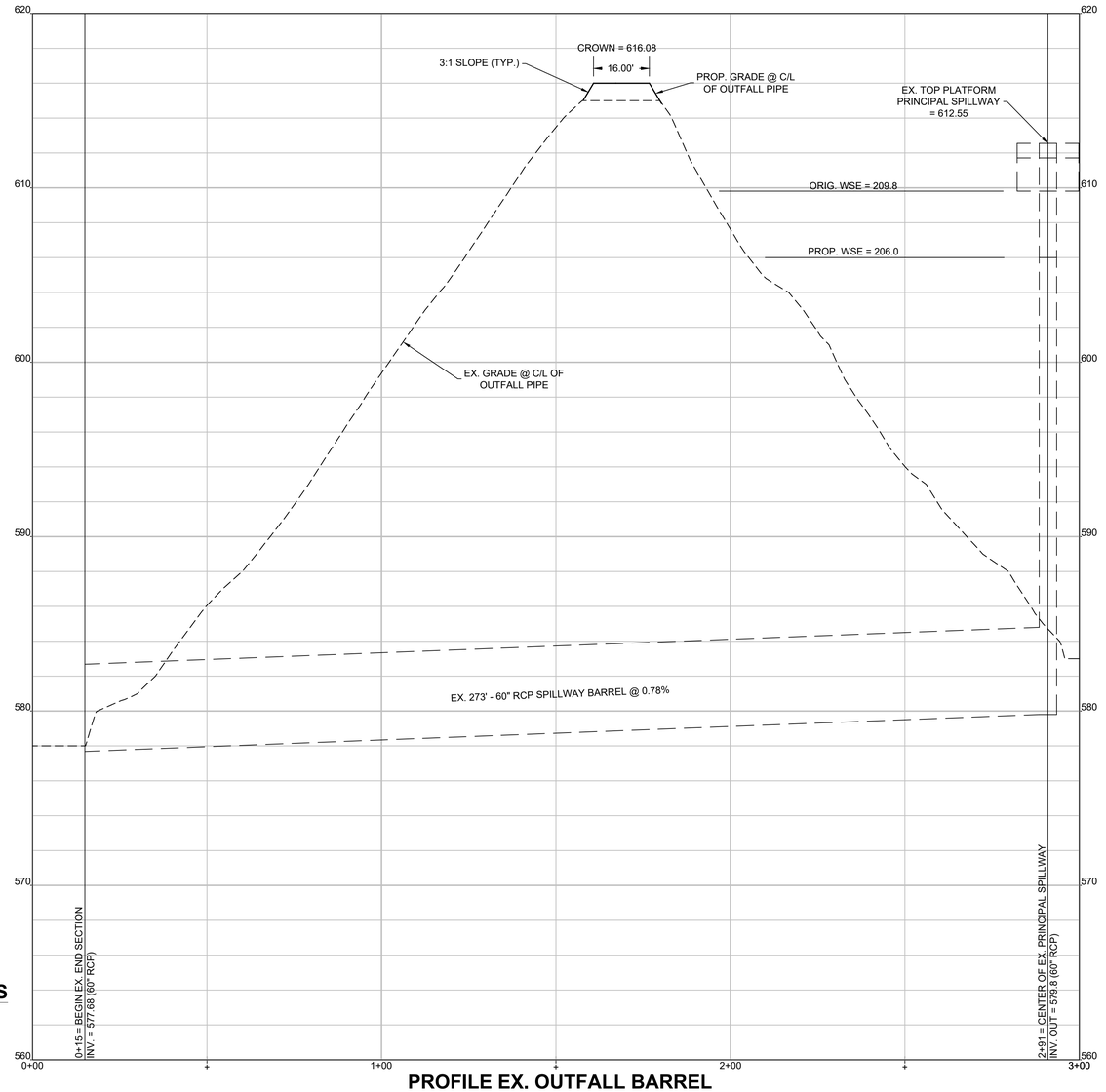
ENGINEER'S SEAL:



CALDWELL LAKE DAM IMPROVEMENTS
CALDWELL LAKE DAM
YORK, YORK COUNTY, SOUTH CAROLINA

SHEET TITLE: PLAN & PROFILE 3

DRAWING NO: 7



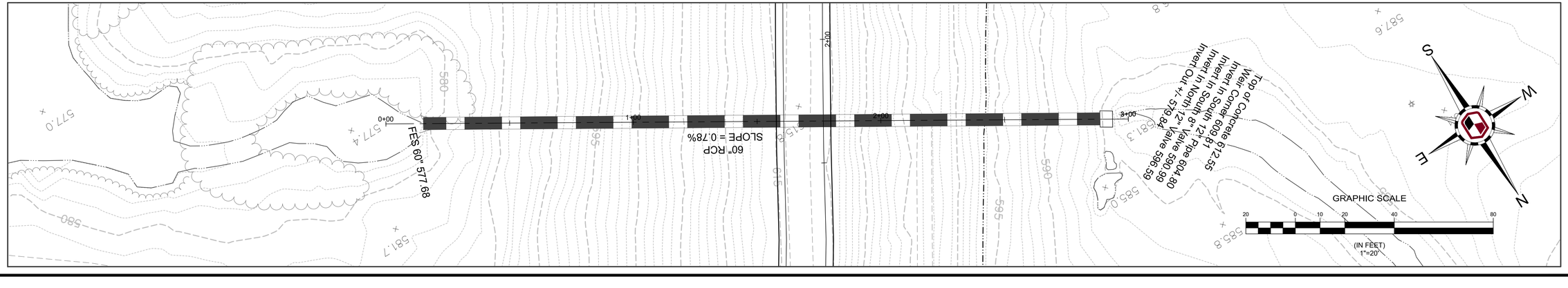
PROFILE EX. OUTFALL BARREL

PROFILE SCALES

H: 1" = 20'
V: 1" = 4'

NOTE

AFTER FINISH GRADE HAS BEEN ESTABLISHED ON THE TOP OF DAM, APPLY NORTH AMERICAN GREEN SC-250 VMAX PERMANENT TURF REINFORCEMENT MATTING. SEE INSTALLATION DETAIL ON DRAWING #10.



CITY OF YORK
PO BOX 500
10 N. ROOSEVELT ST.
YORK, SC 29745

REVISIONS

REV.	DATE	COMMENTS

PROJECT # 1210035-01
DATE: DECEMBER, 2022
DESIGN BY: DW
DRAWN BY: DW
APPROVED: KAA
SCALE: AS SHOWN

CDG
4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
Phone: 704-394-6813
www.cdge.com
License No. C-4973

SOUTH CAROLINA CA SEAL:
SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
CDG, INC
No. 2010031

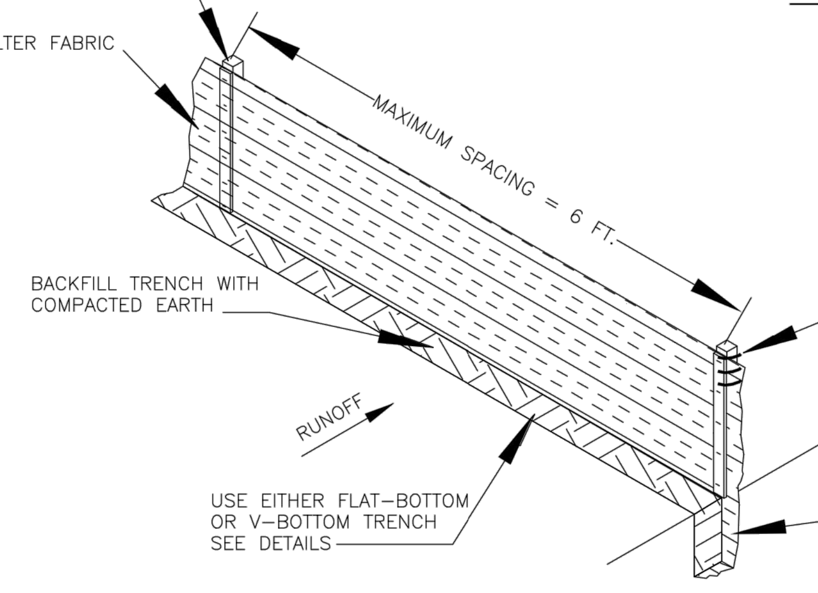
ENGINEER'S SEAL:
SOUTH CAROLINA PROFESSIONAL ENGINEER
No. 27760
5-22-23

CALDWELL LAKE DAM IMPROVEMENTS

CALDWELL LAKE DAM
YORK, YORK COUNTY, SOUTH CAROLINA

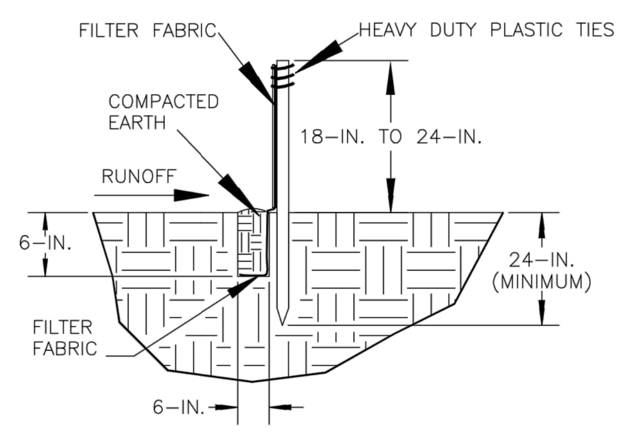
DRAWING NO: 8
SHEET TITLE: PLAN & PROFILE 4

SILT FENCE INSTALLATION

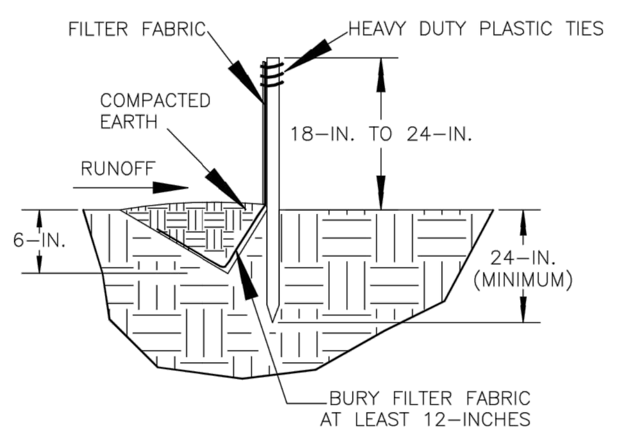


PLAN SYMBOL

FLAT-BOTTOM TRENCH DETAIL



V-SHAPED TRENCH DETAIL



SILT FENCE – GENERAL NOTES

1. Do not place silt fence across channels or in other areas subject to concentrated flows. Silt fence should not be used as a velocity control BMP. Concentrated flows are any flows greater than 0.5 cfs.
2. Maximum sheet or overland flow path length to the silt fence shall be 100-feet.
3. Maximum slope steepness (normal [perpendicular] to the fence line) shall be 2:1.
4. Silt fence joints, when necessary, shall be completed by one of the following options:
   - Wrap each fabric together at a support post with both ends fastened to the post, with a 1-foot minimum overlap;
   - Overlap silt fence by installing 3-feet passed the support post to which the new silt fence roll is attached. Attach old roll to new roll with heavy-duty plastic ties; or,
   - Overlap entire width of each silt fence roll from one support post to the next support post.
5. Attach filter fabric to the steel posts using heavy-duty plastic ties that are evenly spaced within the top 8-inches of the fabric.
6. Install the silt fence perpendicular to the direction of the stormwater flow and place the silt fence the proper distance from the toe of steep slopes to provide sediment storage and access for maintenance and cleanout.
7. Install Silt Fence Checks (Tie-Backs) every 50-100 feet, dependent on slope, along silt fence that is installed with slope and where concentrated flows are expected or are documented along the proposed/installed silt fence.

South Carolina Department of Health and Environmental Control
SILT FENCE
STANDARD DRAWING NO. SC-03 Page 1 of 2
NOT TO SCALE — FEBRUARY 2014 DATE

SILT FENCE – POST REQUIREMENTS

1. Silt Fence posts must be 48-inch long steel posts that meet, at a minimum, the following physical characteristics.
   - Composed of a high strength steel with a minimum yield strength of 50,000 psi.
   - Include a standard "T" section with a nominal face width of 1.38-inches and a nominal "T" length of 1.48-inches.
   - Weigh 1.25 pounds per foot (± 8%)
2. Posts shall be equipped with projections to aid in fastening of filter fabric.
3. Steel posts may need to have a metal soil stabilization plate welded near the bottom when installed along steep slopes or installed in loose soils. The plate should have a minimum cross section of 17-square inches and be composed of 15 gauge steel, at a minimum. The metal soil stabilization plate should be completely buried.
4. Install posts to a minimum of 24-inches. A minimum height of 1- to 2-inches above the fabric shall be maintained, and a maximum height of 3 feet shall be maintained above the ground.
5. Post spacing shall be at a maximum of 6-feet on center.

SILT FENCE – FABRIC REQUIREMENTS

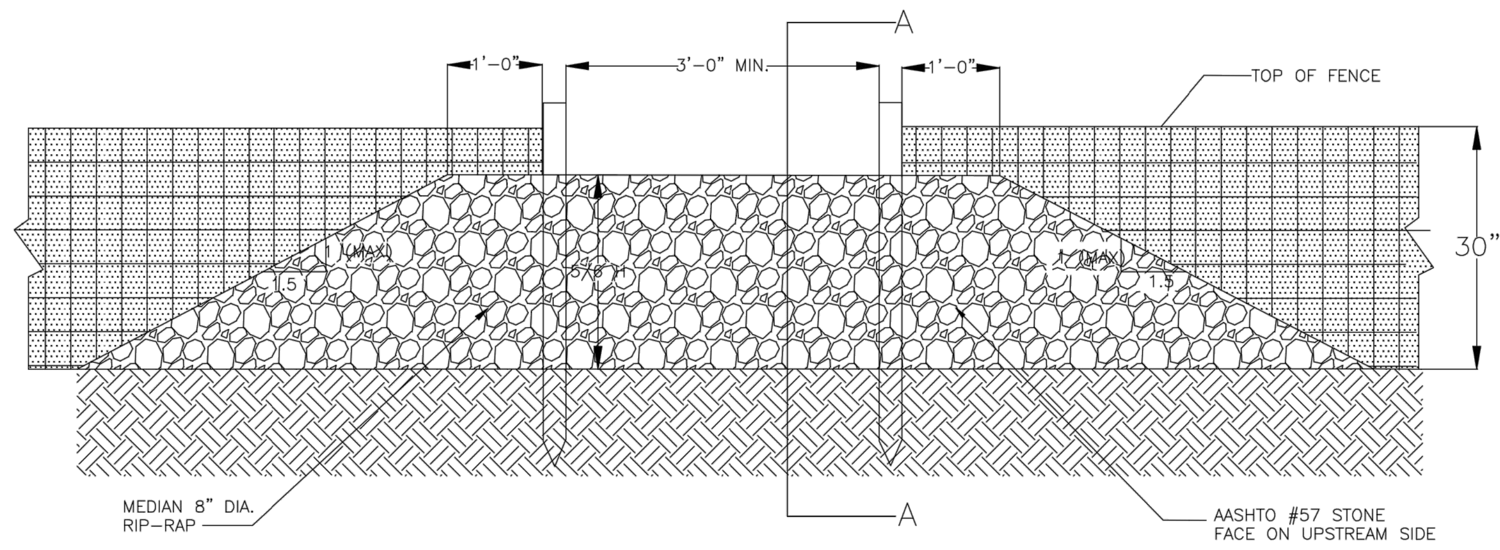
1. Silt fence must be composed of woven geotextile filter fabric that consists of the following requirements:
   - Composed of fibers consisting of long chain synthetic polymers of at least 85% by weight of polyolefins, polyesters, or polyamides that are formed into a network such that the filaments or yarns retain dimensional stability relative to each other;
   - Free of any treatment or coating which might adversely alter its physical properties after installation;
   - Free of any defects or flaws that significantly affect its physical and/or filtering properties; and,
   - Have a minimum width of 36-inches.
2. Use only fabric appearing on SC DOT's Qualified Products Listing (QPL), Approval Sheet #34, meeting the requirements of the most current edition of the SC DOT Standard Specifications for Highway Construction.
3. 12-inches of the fabric should be placed within excavated trench and toed in when the trench is backfilled.
4. Filter Fabric shall be purchased in continuous rolls and cut to the length of the barrier to avoid joints.
5. Filter Fabric shall be installed at a minimum of 24-inches above the ground.

SILT FENCE – INSPECTION & MAINTENANCE

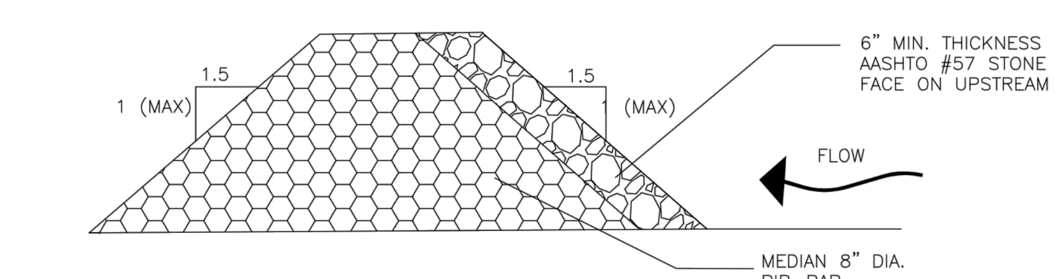
1. The key to functional silt fence is weekly inspections, routine maintenance, and regular sediment removal.
2. Regular inspections of silt fence shall be conducted once every calendar week and, as recommended, within 24-hours after each rainfall even that produces 1/2-inch or more of precipitation.
3. Attention to sediment accumulations along the silt fence is extremely important. Accumulated sediment should be continually monitored and removed when necessary.
4. Remove accumulated sediment when it reaches 1/3 the height of the silt fence.
5. Removed sediment shall be placed in stockpile storage areas or spread thinly across disturbed area. Stabilize the removed sediment after it is relocated.
6. Check for areas where stormwater runoff has eroded a channel beneath the silt fence, or where the fence has sagged or collapsed due to runoff overtopping the silt fence. Install checks/tie-backs and/or reinstall silt fence, as necessary.
7. Check for tears within the silt fence, areas where silt fence has begun to decompose, and for any other circumstance that may render the silt fence ineffective. Removed damaged silt fence and reinstall new silt fence immediately.
8. Silt fence should be removed within 30 days after final stabilization is achieved and once it is removed, the resulting disturbed area shall be permanently stabilized.

South Carolina Department of Health and Environmental Control
SILT FENCE
STANDARD DRAWING NO. SC-03 PAGE 2 of 2
GENERAL NOTES — FEBRUARY 2014 DATE

SILT FENCE ROCK OUTLET



ELEVATION - UP-SLOPE FACE



SECTION A-A

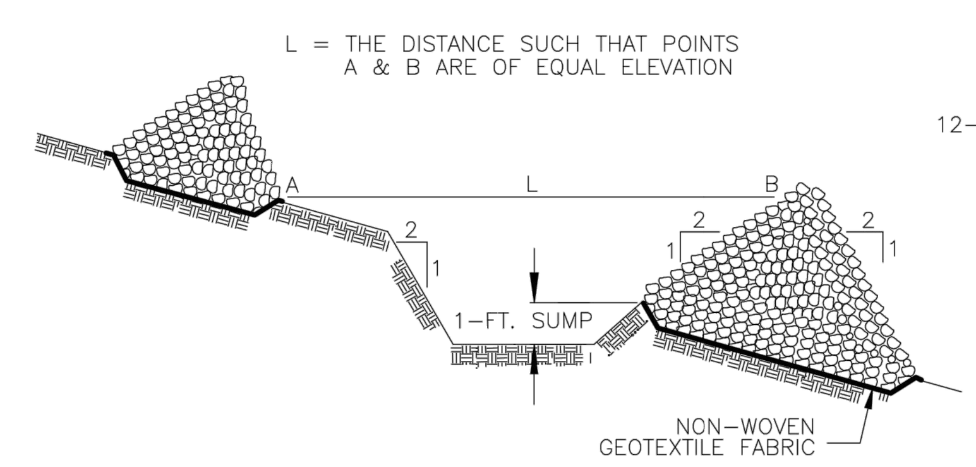
PLAN SYMBOL

NOTES:

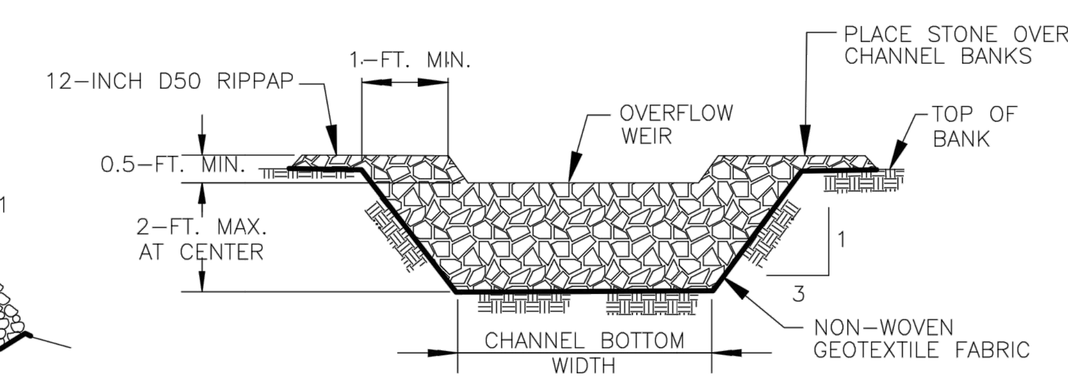
1. WASHED STONE (#57) TO BE REMOVED AND REPLACED ONCE IT BECOMES CLOGGED WITH SEDIMENT.
2. SEDIMENT TO BE REMOVED WHEN ACCUMULATIONS REACH 1/3 HEIGHT OF SILT FENCE
3. THE KEY TO FUNCTIONAL ROCK OUTLETS IS WEEKLY INSPECTIONS, ROUTINE MAINTENANCE, AND REGULAR SEDIMENT REMOVAL.

South Carolina Department of Health and Environmental Control
SILT FENCE ROCK OUTLET
STANDARD DRAWING NO. SC-14 PAGE 1 of 1
NOT TO SCALE — FEBRUARY 2014 DATE

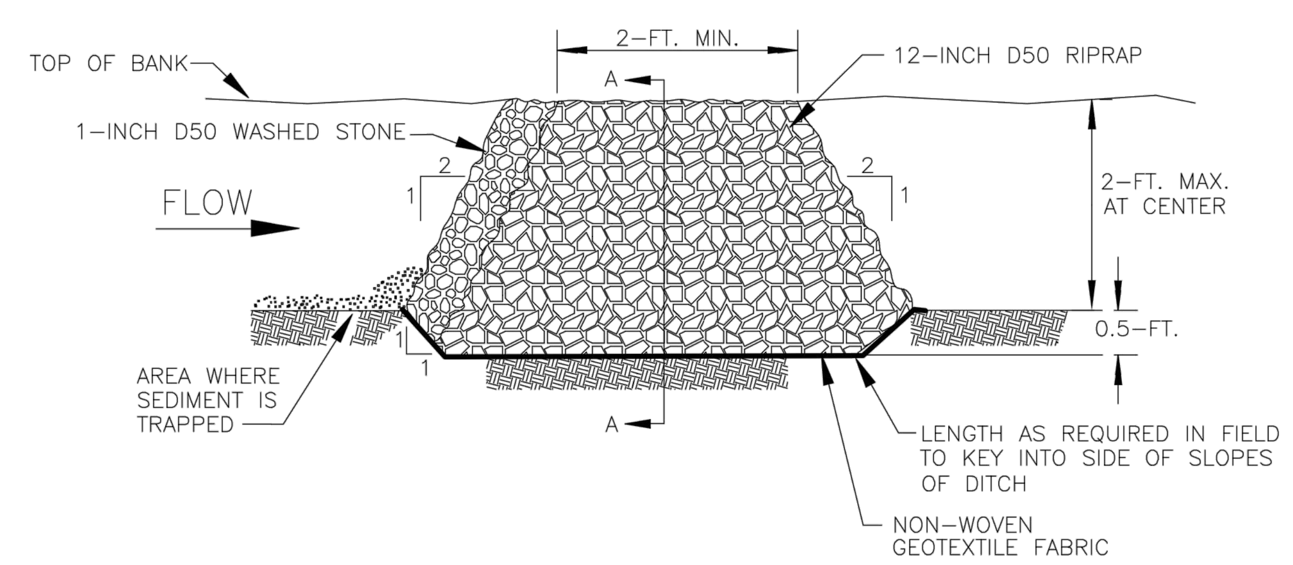
SPACING BETWEEN DITCH CHECK



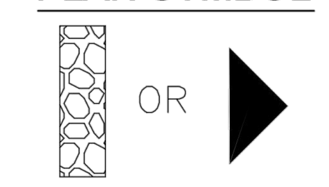
CROSS SECTION A-A THRU STONE DITCH CHECK



TYPICAL DITCH CHECK SECTION



PLAN SYMBOL



South Carolina Department of Health and Environmental Control
ROCK DITCH CHECK
STANDARD DRAWING NO. SC-04 PAGE 1 of 2
NOT TO SCALE — FEBRUARY 2014 DATE

ROCK DITCH CHECK – GENERAL NOTES

1. Rock Ditch Checks should not be placed in Waters of the State or USGS blue-line streams (unless approved by Federal Authorities).
2. Rock Ditch Checks should be installed in steeply sloped channels where adequate vegetation cannot be established. This BMP measure should only be used in small open channels.
3. A non-woven geotextile fabric shall be installed over the soil surface where the rock ditch check is to be placed.
4. The body of the rock ditch check shall be composed of 12-inch D50 Riprap. The upstream face may be composed of 1-inch D50 washed stone.
5. Rock Ditch Checks should not exceed a height of 2-feet at the centerline of the channel.
6. Rock Ditch Checks should have a minimum top flow length of 2-feet.
7. Riprap should be placed over channel banks to prevent water from cutting around the ditch check.
8. The riprap should be placed by hand or mechanical placement (no dumping of rock to form dam) to achieve complete coverage of the channel. Doing so will also ensure that the center of the check is lower than the edges.
9. The maximum spacing between the dams should be such that the toe of the upstream check is at the same elevation as the top of the downstream check.

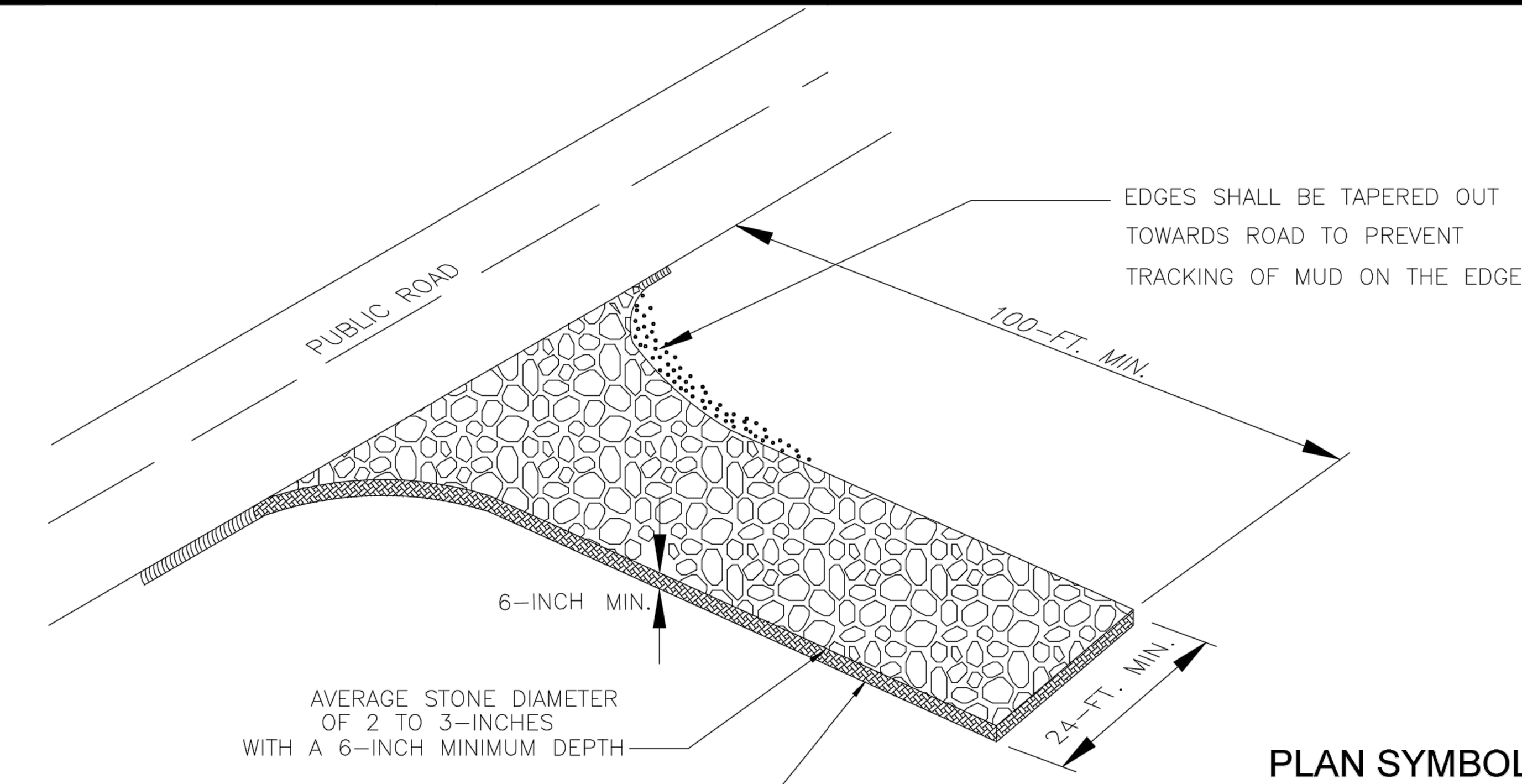
ROCK DITCH CHECK – INSPECTION & MAINTENANCE

1. The key to functional rock ditch check is weekly inspections, routine maintenance, and regular sediment removal.
2. Regular inspections of rock ditch checks shall be conducted once every calendar week and, as recommended, within 24-hours after each rainfall even that produces 1/2-inch or more of precipitation.
3. Attention to sediment accumulations in front of the rock ditch check is extremely important. Accumulated sediment should be continually monitored and removed when necessary.
4. Remove accumulated sediment when it reaches 1/3 the height of the rock ditch check.
5. Removed sediment shall be placed in stockpile storage areas or spread thinly across disturbed area. Stabilize the removed sediment after it is relocated.
6. Inspect Rock Ditch Checks' edges for erosion and evidence of runoff bypassing the installed check. If evident repair promptly as necessary to prevent erosion and bypassing.
7. In the case of grass-lined ditches, channels, and swales, rock ditch checks should be removed when the grass has matured sufficiently to protect the ditch or swale unless the slope of the swale is greater than 4%.
8. After construction is completed and final stabilization is reached, the entirety of the rock ditch check should be removed if vegetation will be used for permanent erosion control measures. The area beneath the removed rock ditch check must be addressed with permanent stabilization measures.

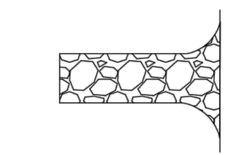
South Carolina Department of Health and Environmental Control
ROCK DITCH CHECK
STANDARD DRAWING NO. SC-04 PAGE 2 of 2
GENERAL NOTES — FEBRUARY 2014 DATE

SUGGESTED CONSTRUCTION SEQUENCE

1. PERMITTEE IS ISSUED A SOUTH CAROLINA NPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FOR CONSTRUCTION ACTIVITIES BY SCDHEC FOLLOWING MS4 APPROVAL AND RECEIPT OF AN APPROVED NOI.
2. CONSTRUCTION ACTIVITIES SHALL NOT COMMENCE UNTIL SUCH TIME AS THE PERMITTEE RECEIVES THE NPDES GENERAL PERMIT AND AN ON-SITE PRE-CONSTRUCTION CONFERENCE IS HELD.
3. COORDINATE, SCHEDULE AND CONDUCT AN ON-SITE PRE-CONSTRUCTION CONFERENCE. CONTACT YORK COUNTY ENVIRONMENTAL COMPLIANCE AT (803) 818-5598 TO SCHEDULE THE PRE-CONSTRUCTION CONFERENCE.
4. BE ISSUED A PRELIMINARY YORK COUNTY LAND DISTURBANCE PERMIT AT THE PRE-CONSTRUCTION CONFERENCE.
5. CLEAR ONLY NECESSARY LAND AREA IN ORDER TO INSTALL PERIMETER EROSION CONTROL MEASURES PER APPROVED PLAN. PERMITTEE SHALL CONDUCT SITE INSPECTIONS PER THE PROVISIONS OF SECT. 4.2 OF THE SOUTH CAROLINA NPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES.
6. CONTACT YORK COUNTY ENVIRONMENTAL COMPLIANCE TO REQUEST AN INSPECTION OF THE PERIMETER CONTROL MEASURES. UPON SATISFACTORY INSPECTION AND APPROVAL OF PERIMETER CONTROL MEASURES AND SEDIMENT TRAP, YORK COUNTY WILL ISSUE THE FINAL LAND DISTURBANCE PERMIT.
7. MASS GRADING AND OTHER CONSTRUCTION ACTIVITIES MAY COMMENCE.
8. UPGRADE EXISTING DIRT/GRAVEL ACCESS ROAD FROM PUBLIC RIGHT OF WAY (CALIFORNIA ROAD) WITH MATERIALS TO ALLOW FOR TRACTOR TRAILER AND DUMP TRUCK TRAFFIC. ESTABLISH CONSTRUCTION ENTRANCE PER DETAIL SC-06 AS SHOWN ON THIS SHEET.
9. BEGIN ROUGH GRADING OF EMERGENCY SPILLWAY. CONSTRUCT CONCRETE FORMS FOR SPILLWAY BASE AND SIDE WALLS.
10. AS CONSTRUCTION BEGINS TO OVERLAP THE TEMPORARY SEDIMENT TRAP, REMOVE ONLY THAT PORTION OF THE TRAP THAT WILL ALLOW FOR THE CONCRETE POUR AND NEW CONSTRUCTION TO CONTINUE, INCLUDING THE PLUNGE POOL. AS THE NEW CONCRETE SPILLWAY IS BEING CONSTRUCTED FROM THE TOP, IT TAKES THE PLACE OF THE DENUDED AREAS AND LESSENS THE NEED FOR THE SEDIMENT TRAP.
11. CONTINUE POURING CONCRETE TO COMPLETE EMERGENCY SPILLWAY, SIDE WALLS, AND PLUNGE POOL.
12. SEED AND PLACE NORTH AMERICAN GREEN SC250 MATTING ON ALL DISTURBED AREAS TO PROMOTE VEGETATION. SEE DRAWING #10 AND MANUFACTURER'S SPECIFICATIONS FOR INSTALLATION DETAILS.
13. REMOVE EXISTING DRAIN VALVE AT THE BOTTOM OF THE EXISTING PRIMARY SPILLWAY. CLEAN AREA SURROUNDING OLD VALVE AND REPLACE WITH THE WATERMAN STAINLESS STEEL SS-250-1 SLIDE GATE VALVE AND STEM. LEAVE VALVE OPEN UNTIL APPROVAL OF DAM RECONFIGURATION HAS BEEN GIVEN BY SCDHEC DAM SAFETY SECTION.
14. LOWER EXISTING WEIRS ON ALL FOUR SIDES OF THE RISER BY SAW-CUTTING THE EXISTING WEIRS TO THE ELEVATION DETAILED ON DRAWING #11.
15. REMOVE SIX-INCHES OF THE EXISTING SOIL ON THE TOP OF THE DAM WHERE NEW SOIL IS TO BE PLACED. SCARIFY EXPOSED DISTURBED AREA.
16. PLACE SUITABLE SOILS AND COMPACT PER SPECIFICATIONS CONTAINED ON DRAWING # 13.
11. SEED AND PLACE NORTH AMERICAN GREEN SC250 MATTING ON ALL DISTURBED AREAS TO PROMOTE VEGETATION. SEE DRAWING #10 AND MANUFACTURER'S SPECIFICATIONS FOR INSTALLATION DETAILS.
12. REMOVAL OF ANY EROSION AND SEDIMENTATION CONTROL MEASURES ARE TO STAY IN PLACE UNTIL APPROVAL FROM YORK COUNTY EROSION CONTROL FIELD INSPECTOR.



PLAN SYMBOL



SPECIFICATION	SIZE
ROCK PAD THICKNESS	6 INCHES
ROCK PAD WIDTH	24 FEET
ROCK PAD LENGTH	100 FEET
ROCK PAD STONE SIZE	D = 2-3 INCHES

South Carolina Department of Health and Environmental Control
CONSTRUCTION ENTRANCE
STANDARD DRAWING NO. SC-06 PAGE 1 of 2
NOT TO SCALE — FEBRUARY 2014 DATE

CONSTRUCTION ENTRANCE – GENERAL NOTES

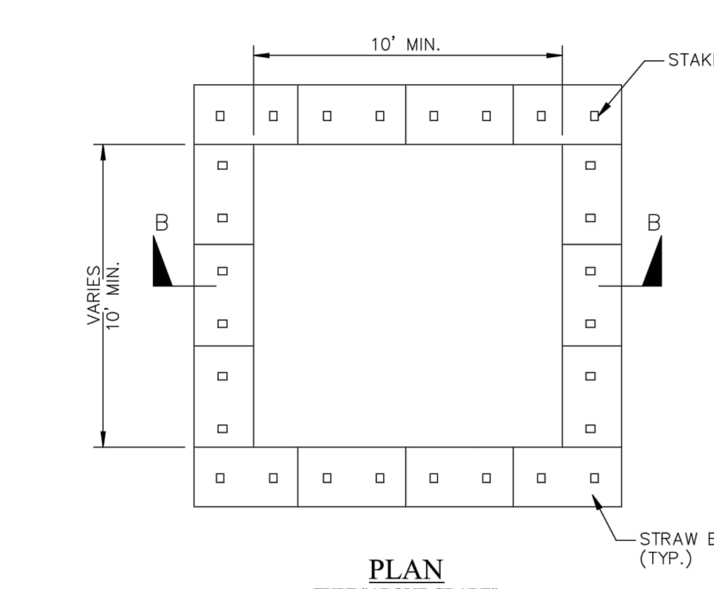
1. Stabilized construction entrances should be used at all points where traffic will egress/ingress a construction site onto a public road or any impervious surfaces, such as parking lots.
2. Install a non-woven geotextile fabric prior to placing any stone.
3. Install a culvert pipe across the entrance when needed to provide positive drainage.
4. The entrance shall consist of 2-inch to 3-inch D50 stone placed at a minimum depth of 6-inches.
5. Minimum dimensions of the entrance shall be 24-feet wide by 100-feet long, and may be modified as necessary to accommodate site constraints.
6. The edges of the entrance shall be tapered out towards the road to prevent tracking at the edge of the entrance.
7. Divert all surface runoff and drainage from the stone pad to a sediment trap or basin or other sediment trapping structure.
8. Limestone may not be used for the stone pad.

CONSTR. ENTRANCE – INSPECTION & MAINTENANCE

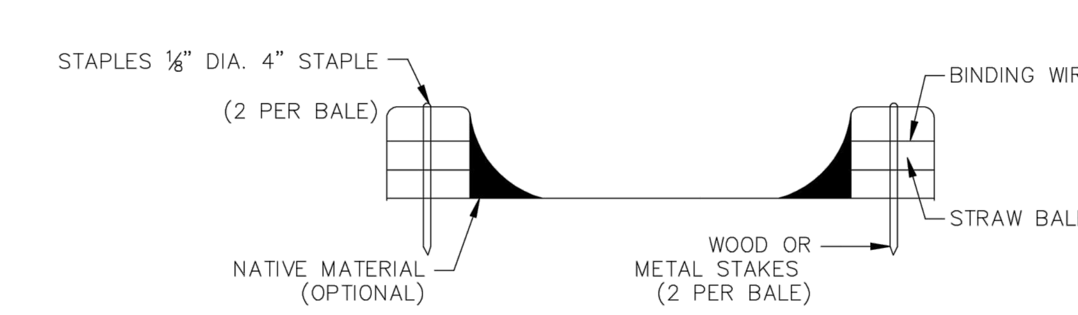
1. The key to functional construction entrances is weekly inspections, routine maintenance, and regular sediment removal.
2. Regular inspections of construction entrances shall be conducted once every calendar week and, as recommended, within 24-hours after each rainfall even that produces 1/2-inch or more of precipitation.
3. During regular inspections, check for mud and sediment buildup and pad integrity. Inspection frequencies may need to be more frequent during long periods of wet weather.
4. Reshape the stone pad as necessary for drainage and runoff control.
5. Wash or replace stones as needed and as directed by site inspector. The stone in the entrance should be washed or replaced whenever the entrance fails to reduce the amount of mud being carried off-site by vehicles. Frequent washing will extend the useful life of stone pad.
6. Immediately remove mud and sediment tracked or washed onto adjacent impervious surfaces by brushing or sweeping. Flushing should only be used when the water can be discharged to a sediment trap or basin.
7. During maintenance activities, any broken pavement should be repaired immediately.
8. Construction entrances should be removed after the site has reached final stabilization. Permanent vegetation should replace areas from which construction entrances have been removed, unless area will be converted to an impervious surface to serve post-construction.

South Carolina Department of Health and Environmental Control
CONSTRUCTION ENTRANCE
STANDARD DRAWING NO. SC-06 PAGE 2 of 2
GENERAL NOTES — FEBRUARY 2014 DATE

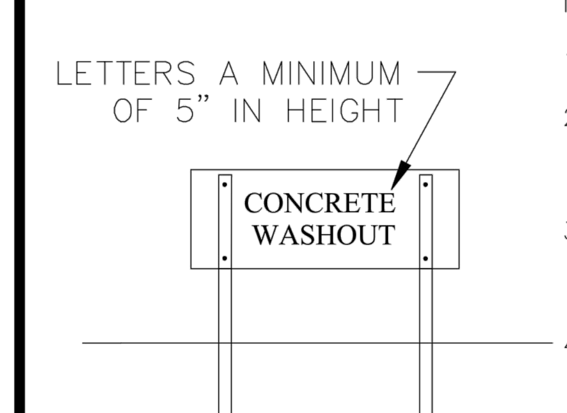
STRAW BALE BARRIER CONCRETE WASHOUT



PLAN
TYPE "ABOVE GRADE" WITH STRAW BALES



SECTION B-B



CONCRETE WASHOUT SIGN DETAIL

NOTES:

1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. INSTALL CONCRETE WASHOUT SIGN (24"X24", MINIMUM) WITHIN 30' OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
3. TEMPORARY WASHOUT AREA MUST BE AT LEAST 50' FROM A STORM DRAIN, CREEK BANK OR PERIMETER CONTROL.
4. CLEAN OUT CONCRETE WASHOUT AREA WHEN 50% FULL.
5. THE KEY TO FUNCTIONAL CONCRETE WASHOUTS IS WEEKLY INSPECTIONS, ROUTINE MAINTENANCE, AND REGULAR CLEAN OUT.
6. SILT FENCE SHALL BE INSTALLED AROUND PERIMETER OF CONCRETE WASHOUT AREA EXCEPT FOR THE SIDE UTILIZED FOR ACCESSING THE WASHOUT.
7. A ROCK CONSTRUCTION ENTRANCE MAY BE NECESSARY ALONG ONE SIDE OF THE WASHOUT TO PROVIDE VEHICLE ACCESS.

South Carolina Department of Health and Environmental Control
CONCRETE WASHOUT
STRAW BALES OR ABOVE GROUND
STANDARD DRAWING NO. RC-07 PAGE 1 of 1
NOT TO SCALE — FEBRUARY 2014 DATE

CITY OF YORK
PO BOX 500
10 N. ROOSEVELT ST.
YORK, SC 29745

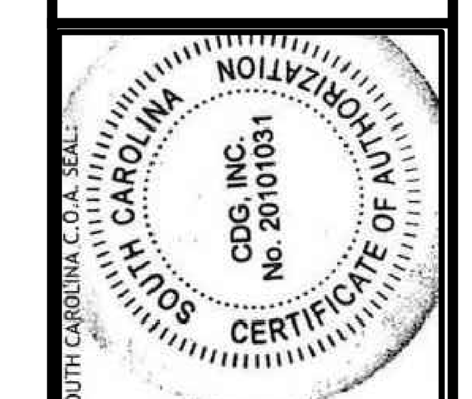
REVISIONS

REV.	DATE	COMMENTS

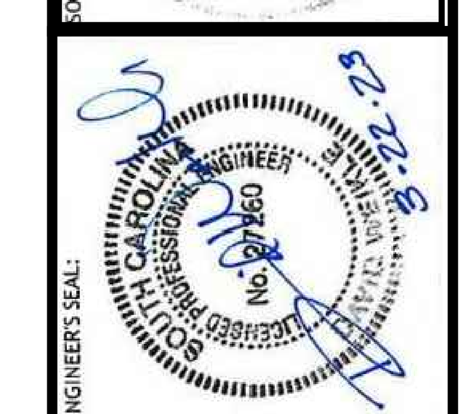
PROJECT #	1210035-01
DATE:	DECEMBER, 2022
DESIGN BY:	DW
DRAWN BY:	DW
APPROVED:	KAA
SCALE:	AS SHOWN

CDG
4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
Phone: 704-394-6913
www.cdge.com
License No. C-4973

SOUTH CAROLINA C.O.A. SEAL:



ENGINEER'S SEAL:



CALDWELL LAKE DAM IMPROVEMENTS
CALDWELL LAKE DAM
YORK, YORK COUNTY, SOUTH CAROLINA

SHEET TITLE: EROSION & SEDIMENTATION CONTROL DETAILS - 1

DRAWING NO: 9

Permanent Seeding

Plan Symbol

PS

Description
Controlling runoff and preventing erosion by establishing a perennial vegetative cover with seed.

When and Where to Use It
A major consideration in the selection of the type of permanent grass to establish is the intended use of the land. Land use is separated in to two categories, high-maintenance and low-maintenance.

High-maintenance
High maintenance areas are mowed frequently, lime or fertilized on a regular basis, and require maintenance to an aesthetic standard. Land uses with high maintenance grasses include homes, industrial parks, schools, churches, and recreational areas such as parks, athletic fields, and golf courses.

Low-maintenance
Low maintenance areas are mowed infrequently, if at all, and lime and fertilizer may not be applied on a regular schedule. These areas are not subject to intense use and do not require a uniform appearance. The vegetation must be able to survive with little maintenance over long periods of time. Grass and legume mixtures are favored in these areas because legumes are capable of fixing nitrogen in the soil for their own use and the use of the grasses around them. Land uses requiring low-maintenance grasses include steep slopes, stream and channel banks, road banks, and commercial and industrial areas with limited access.

Seed Selection
The use of native species is preferred when selecting vegetation. Base plant seed selection on geographical location, the type of soil, the season of the year in which the planting is to be done, and the needs and desires of the permanent land user. Failure to carefully follow agronomic recommendations results in an inadequate stand of permanent vegetation that provides little or no erosion control.

Installation

Topsoil
Apply topsoil if the surface soil of the seedbed is not adequate for plant growth.

Tillage
If the area has been recently plowed, no tillage is required other than raking or surface roughening to break any crust that has formed leaving a textured surface. Disk the soil for optimal germination when the soil is compacted less than 6-inches. If the soil is compacted more than 6-inches, sub-soiled and disk the area.

Soil Testing
Soil testing is available through Clemson University Cooperative Extension Service.

Lime
Unless a specific soil test indicates otherwise, apply 1½ tons of ground course textured agricultural limestone per acre (70 pounds per 1000 square feet).

Fertilizer
Apply a minimum of 1000 pounds per acre of a complete 10-10-10 fertilizer (23 pounds per 1000 square feet) or equivalent during permanent seeding of grasses unless a soil test indicates a different requirement. Incorporate fertilizer and lime (if used) into the top 4-6 inches of the soil by disking or other means where conditions allow. Do not mix the lime and the fertilizer prior to the field application.

Seeding
Loosen the surface of the soil just before broadcasting the seed. Evenly apply seed by the most convenient method available for the type of seed applied and the location of the seeding. Typical application methods include but are not limited to cyclone seeders, rotary spreaders, drop spreaders, broadcast spreaders, hand spreaders, cultipacker seeder, and hydro-seeders. Cover applied seed by raking or dragging a chain or brush mat, and then lightly firm the area with a roller or cultipacker. Do not roll seed that is applied with a hydro-seeder and hydro-mulch.

Mulching
Cover all permanent seeded areas with mulch immediately upon completion of the seeding application to retain soil moisture and reduce erosion during establishment of vegetation. Apply the mulch evenly in such a manner that it provides a minimum of 75% coverage. Typical mulch applications include straw, wood fiber, hydromulches, BFM and FGM. Use hydromulches with a minimum blend of 70% wood fibers.

The most commonly accepted mulch used in conjunction with permanent seeding is small grain straw. Select straw that is dry and free from mold damage and noxious weeds. The straw may need to be anchored with netting or asphalt emulsions to prevent it from being blown or washed away. Apply straw mulch by hand or machine at the rate 2 tons per acre (90 pounds per 1000 square feet). Frequent inspections are necessary to check that conditions for growth are good.

Irrigation
Keep permanent seeded areas adequately moist, especially late in the specific growing season. Irrigate the seeded area if normal rainfall is not adequate for the germination and growth of seedlings. Water seeded areas at controlled rates that are less than the rate at which the soil can absorb water to prevent runoff. Runoff of irrigation water wastes water and can cause erosion.

Re-seeding
Inspect permanently seeded areas for failure, make necessary repairs and re-seed or overseed within the same growing season if possible. If the grass cover is sparse or patchy, re-evaluate the choice of grass and quantities of lime and fertilizer applied. Final stabilization by permanent seeding of the site requires that it be covered by a 70% coverage rate.

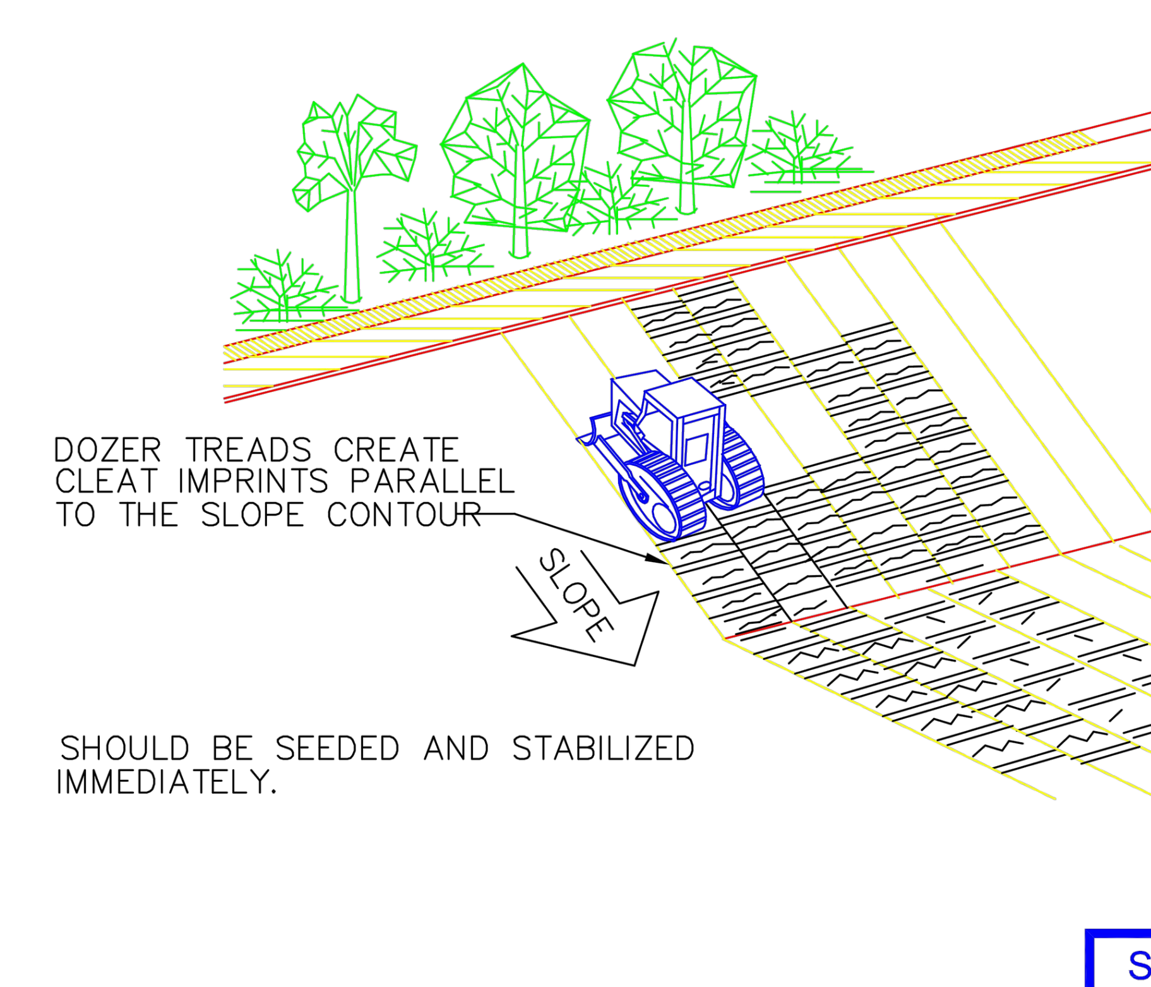
Inspection and Maintenance
- Inspect seeded areas for failure and make necessary repairs and re-seed immediately. Conduct a follow-up survey after one year and replace failed plants where necessary.
- If vegetative cover is inadequate to prevent rill erosion, overseed and fertilize in accordance with soil test results.
- If a stand of permanent vegetation has less than 40 percent cover, re-evaluate choice of plant materials and quantities of lime and fertilizer.
- Re-establish the stand following seed bed preparation and seeding recommendations, omitting lime and fertilizer in the absence of soil test results.
- If the season prevents re-sowing, mulch is an effective temporary cover.
- Final stabilization of the site requires a 70 percent overall coverage rate. This does not mean that 30 percent of the site can remain bare. The coverage is defined as looking at a square yard of coverage, in which 70 percent of that square yard is covered with vegetation.

Permanent Seeding

Permanent Seeding

Preventive Measures and Troubleshooting Guide

Field Condition	Common Solutions
Areas have eroded.	Re-seed or replace eroded areas.
Vegetation cover is inadequate and rill erosion is occurring.	Overseed and fertilize in accordance with soil test results.
Stand of permanent vegetation has less than 40% cover.	Re-evaluate choice of plant materials and quantities of lime and fertilizer.
Vegetation show signs of wilting before noon.	Water vegetation by wetting soil to a depth of 4-inches.



TRACKING

South Carolina Department of Health and Environmental Control

TRACKING

STANDARD DRAWING NO. EC-01 Page 1

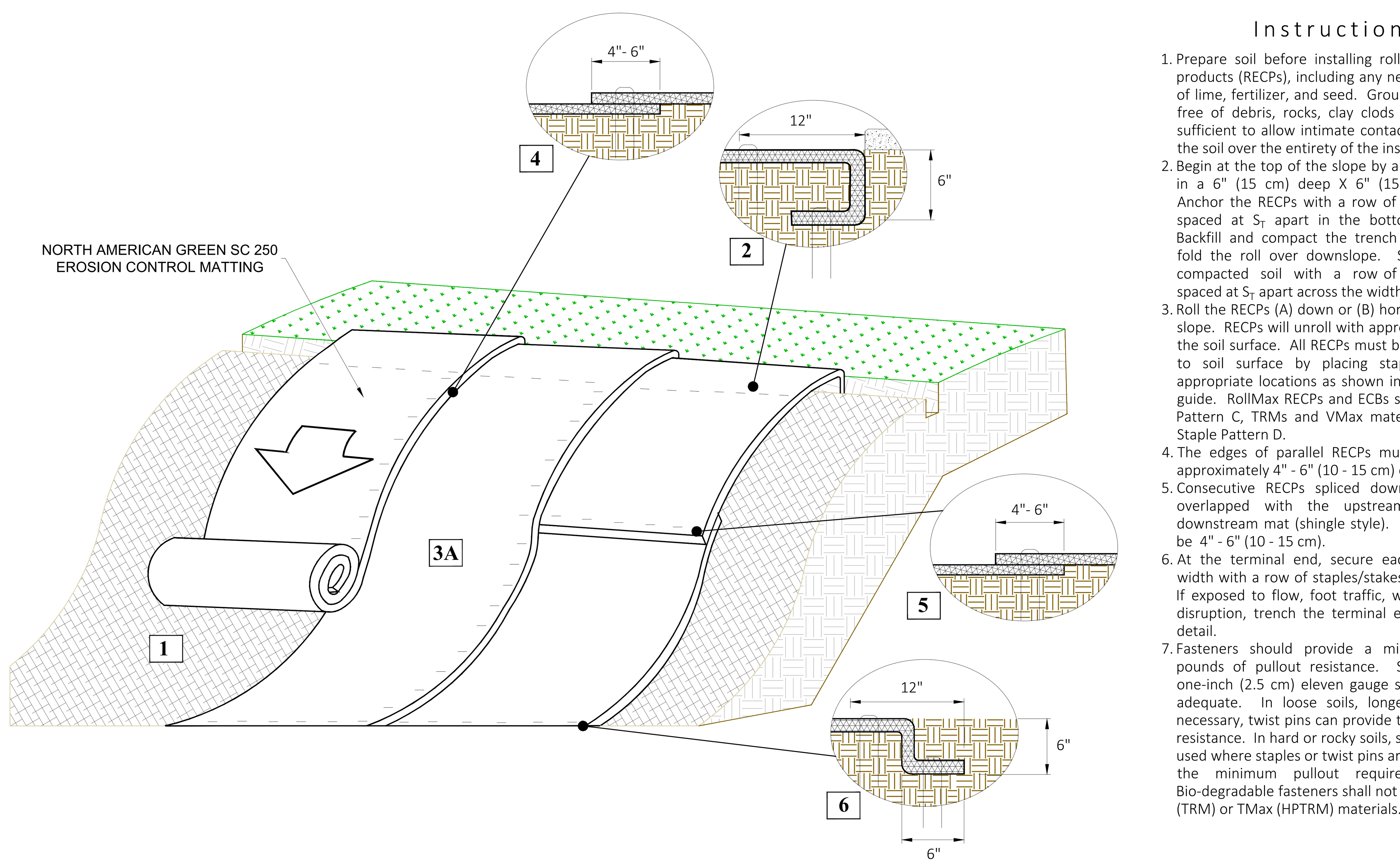
APPROVED BY: SCDHEC — AUGUST, 2005 DATE

Temporary Seeding - Upstate

Species	lbs./ac	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Browntop Millet (Alone)	40				■	■	■	■	■				
Browntop Millet (Mix)	10				■	■	■	■	■				
Rye Grain (Alone)	56		■	■						■	■	■	■
Rye Grain (Mix)	10		■	■						■	■	■	■
Rye Grass (Alone)	50									■	■		
Rye Grass (Mix)	8									■	■		
For Steep Slopes/Cut Slopes													
Weeping Lovegrass (Alone)	4				■	■	■	■					
Weeping Lovegrass (Mix)	2				■	■	■	■					

Permanent Seeding - Upstate

Species	Lbs/Ac	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bahia Grass (Alone)	40				■	■	■	■					
Bahia Grass (Mix)	30				■	■	■	■					
Bermuda Grass (hulled) (Alone)	8-12					■	■	■	■				
Bermuda Grass (hulled) (Mix)	4-6					■	■	■	■				
Fescue, Tall (KY31) Alone	40										■	■	■
Fescue, Tall (KY31) mix	20										■	■	■
Sericea Lespedeza (Scarified) Alone or Mix (inoculate with EL Innoculant	40					■	■	■	■				
Ladino Clover (mix only) Innoculate with AB Innoculant	2										■	■	■
For Steep Slopes/Cut Slopes													
Weeping Lovegrass (Alone)	4					■	■	■	■				
Weeping Lovegrass (Mix)	2					■	■	■	■				
Crownvetch (Mix) (Inoculate with Type M Innoculant	8-10				■	■							

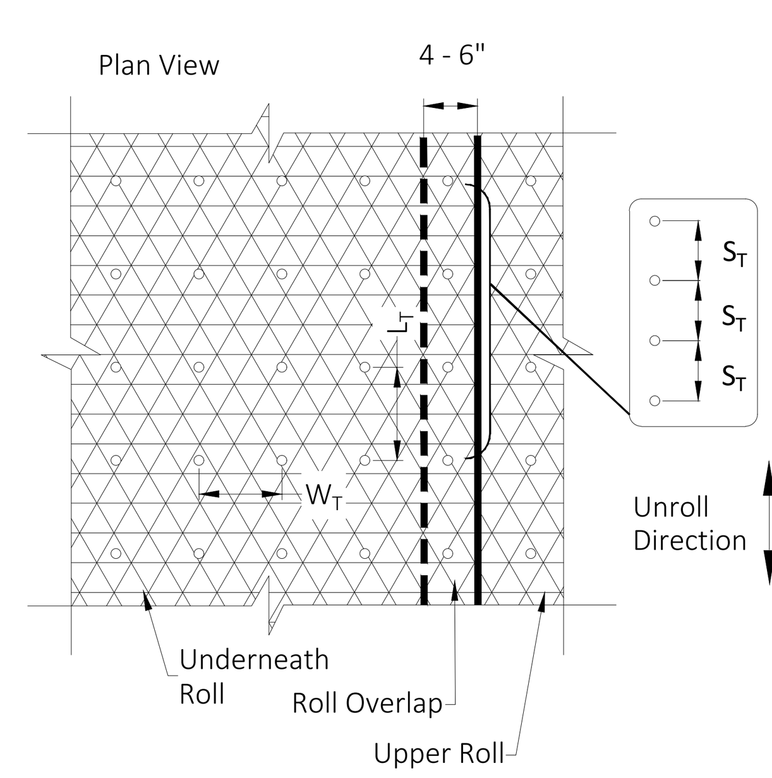


EROSION CONTROL MATTING DETAIL

NOT TO SCALE

Instructions
1. Prepare soil before installing rolled erosion control products (RECPs), including any necessary application of lime, fertilizer, and seed. Ground surface must be free of debris, rocks, clay clods and raked smooth sufficient to allow intimate contact of the RECP with the soil over the entirety of the installation.
2. Begin at the top of the slope by anchoring the RECPs in a 6" (15 cm) deep X 6" (15 cm) wide trench. Anchor the RECPs with a row of staples/stakes/pins spaced at S_T apart in the bottom of the trench. Backfill and compact the trench after stapling and fold the roll over downslope. Secure RECPs over compacted soil with a row of staples/stakes/pins spaced at S_T apart across the width of the RECPs.
3. Roll the RECPs (A) down or (B) horizontally across the slope. RECPs will unroll with appropriate side against the soil surface. All RECPs must be securely fastened to soil surface by placing staples/stakes/pins in appropriate locations as shown in the staple pattern guide. RollMax RECPs and ECBs should utilize Staple Pattern C, TRMs and VMax materials should utilize Staple Pattern D.
4. The edges of parallel RECPs must be stapled with approximately 4" - 6" (10 - 15 cm) overlap.
5. Consecutive RECPs spliced down the slope must overlapped with the upstream mat atop the downstream mat (shingle style). The overlap should be 4" - 6" (10 - 15 cm).
6. At the terminal end, secure each mat across the width with a row of staples/stakes/pins spaced at S_T. If exposed to flow, foot traffic, wind uplift or other disruption, trench the terminal end in as shown in detail.
7. Fasteners should provide a minimum of twenty pounds of pullout resistance. Six-inch (10 cm) X one-inch (2.5 cm) eleven gauge staples are typically adequate. In loose soils, longer staples may be necessary, twist pins can provide the greatest pullout resistance. In hard or rocky soils, straight pins may by used where staples or twist pins are refused, provided the minimum pullout requirements are met. Bio-degradable fasteners shall not be used with VMax (TRM) or TMax (HPTRM) materials.

Staple Pattern Guide



○ Pin / Staple / Twist Pin, as appropriate for field conditions

	Staple Pattern
Dimension	C
W_T	30" (75 cm)
L_T	30" (75 cm)
S_T	18" (45 cm)
Nominal Frequency	1.7 / SY
Application	ECB (Degradable)

CITY OF YORK
PO BOX 500
10 N. ROOSEVELT ST.
YORK, SC 29745

REVISIONS

REV.	DATE	COMMENTS

PROJECT # 1210035-01
DATE: DECEMBER, 2022
DESIGN BY: DW
DRAWN BY: DW
APPROVED: KAA
SCALE: AS SHOWN

CDG
4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
Phone: 704-394-6913
www.cdge.com
License No. C-4973

SOUTH CAROLINA C.O.A. SEAL: SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION CDG, INC. No. 20101031

ENGINEER'S SEAL: 3-22-23

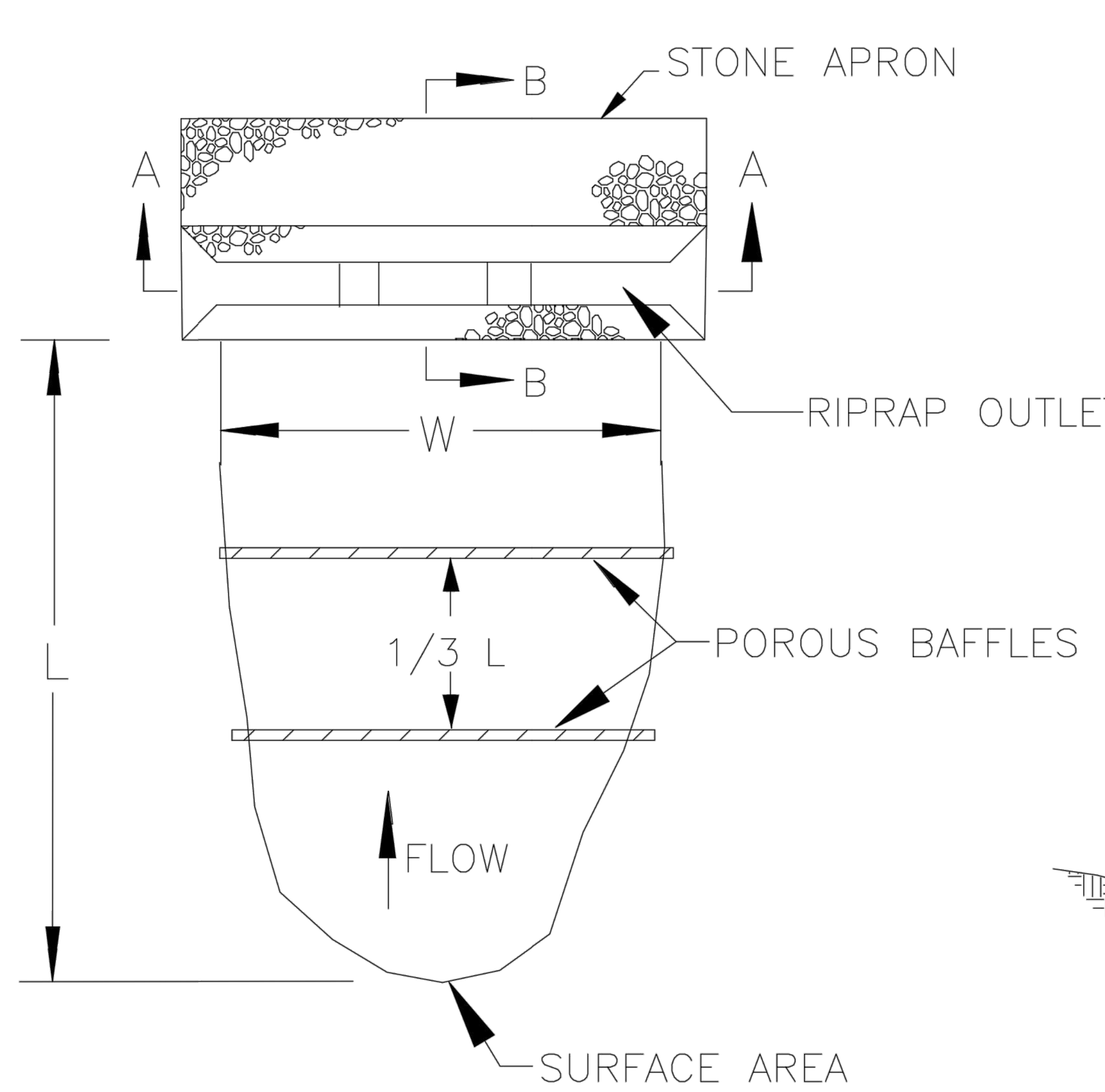
CALDWELL LAKE DAM IMPROVEMENTS
CALDWELL LAKE DAM
YORK, YORK COUNTY, SOUTH CAROLINA

SHEET TITLE: EROSION & SEDIMENTATION CONTROL DETAILS - 2

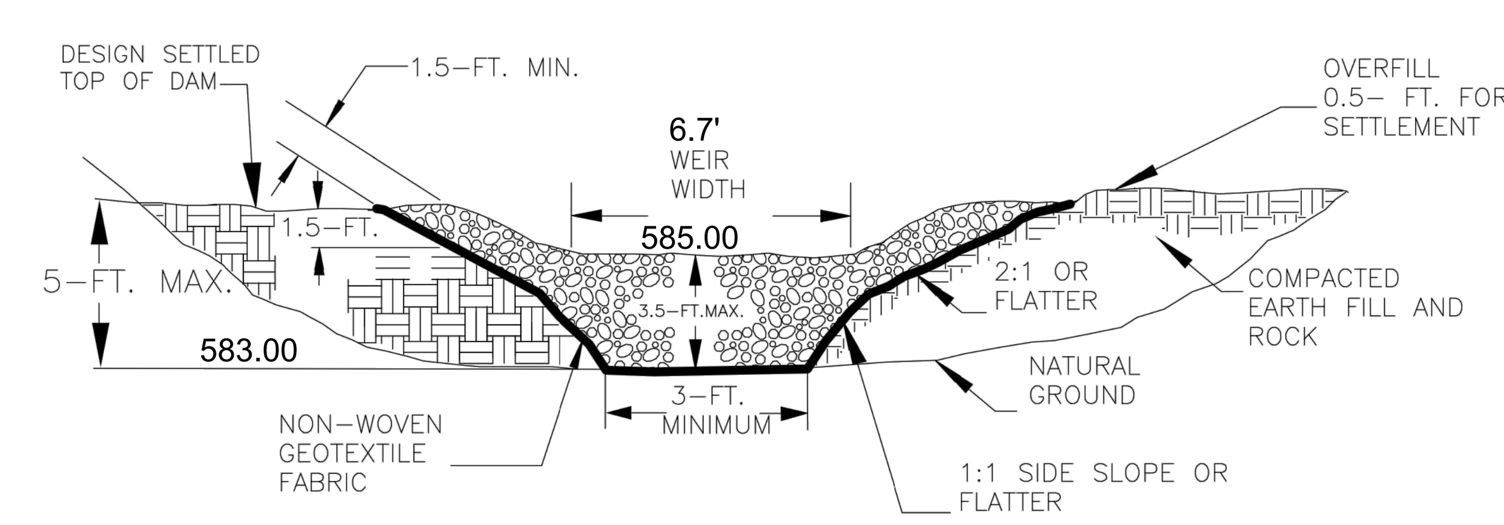
DRAWING NO: 10

C:\Users\dave.weikle\CDG, Inc\Charlotte Projects - 1210035-01 City Of York - Lake Caldwell Dam\Project Details\Drawings\1210035-01 EROSION.dwg, 3/22/2023 3:11 PM, Dave Weikle

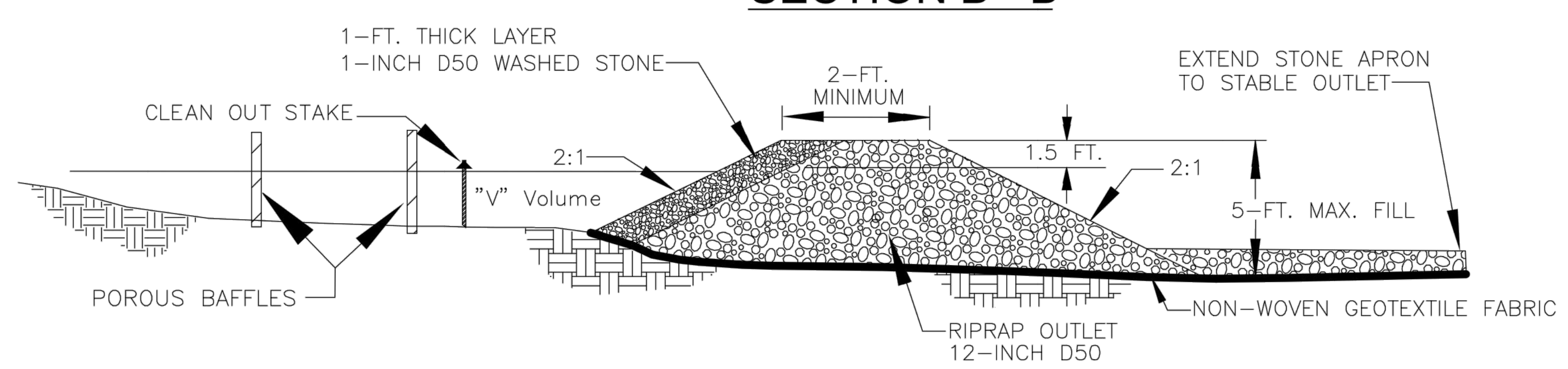
SEDIMENT TRAP PLAN VIEW



SECTION A - A



SECTION B - B



PLAN SYMBOL

SECTION A - A DIMENSIONS

Trap #	Riprap Outlet Height	Riprap Bottom Width	Riprap Top Width	Side Slopes	Embankment Height

SECTION B - B DIMENSIONS

Trap #	Riprap Bottom Length	Riprap Top Length	Side Slopes	Stone Apron Length	"V" Volume

South Carolina Department of Health and Environmental Control

SEDIMENT TRAP

STANDARD DRAWING NO. SC-02 Page 1 of 2

NOT TO SCALE FEBRUARY 2014 DATE

SEDIMENT TRAP – GENERAL NOTES

1. Sediment traps should not be placed in Waters of the State or USGS blue-line streams (unless approved by Federal Authorities).
2. The rock outlet structure shall consist of 12-inch D50 riprap. The upstream face of this outlet shall consist of a 1-foot thick layer of 1-inch D50 washed stone. The maximum steepness of the rock outlet structure shall be 2:1.
3. Both the rock outlet and the stone apron shall have an underlying layer of non-woven geotextile filter fabric.
4. All internal side slopes of the sediment trap should be 3:1 or flatter.
5. A sediment cleanout stake should be installed and marked to remove sediment at 50% of the sediment storage volume.
6. At least two (2) porous baffles shall be installed within the sediment trap. There should be at least 10 linear feet between each baffle and between any row of baffles and any of the sediment trap's inlets/outlets.
7. After construction of each sediment trap, the area disturbed to construct the trap should be promptly stabilized, including all side slopes.
8. The following sediment trap requirements shall be maintained:
   - Maximum embankment height shall be 5-feet.
   - Maximum riprap outlet height shall be 3.5-feet.
   - Minimum width at bottom of riprap outlet shall be 3-feet.
   - Minimum flow length at top of riprap outlet shall be 2-feet.

SEDIMENT TRAP – INSPECTION AND MAINTENANCE

1. The key to a functional sediment trap is weekly inspections, routine maintenance and regular sediment removal.
2. Attention to sediment accumulations within the trap is extremely important. Accumulated sediment deposition should be continually monitored in the trap and removed when necessary.
3. Remove accumulated sediment when it reaches 50% of the designed sediment storage volume as marked by the cleanout stake.
4. Removed sediment from the trap shall be placed in stockpile storage areas or spread thinly across the disturbed area. Stabilize the removed sediment after it is relocated.
5. Regular inspections of sediment traps should be conducted once every calendar week and, as recommended, within 24-hours after each rainfall event that produces ½-inch or more of precipitation.
6. Disturbed areas resulting from the removal of the sediment trap should be permanently stabilized and additional BMPs, such as silt fence, should be utilized to handle stormwater runoff from this disturbed area until final stabilization is reached.

South Carolina Department of Health and Environmental Control

SEDIMENT TRAP

STANDARD DRAWING NO. SC-02 Page 2 of 2

GENERAL NOTES FEBRUARY 2014 DATE

CITY OF YORK
PO BOX 500
10 N. ROOSEVELT ST.
YORK, SC 29745

REVISIONS

REV.	DATE	COMMENTS

PROJECT #	1210035-01
DATE:	DECEMBER, 2022
DESIGN BY:	DW
DRAWN BY:	DW
APPROVED:	KAA
SCALE:	AS SHOWN

CDG
4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
Phone: 704-394-6913
www.cdge.com
License No. C-4973

SOUTH CAROLINA C.O.A. SEAL:

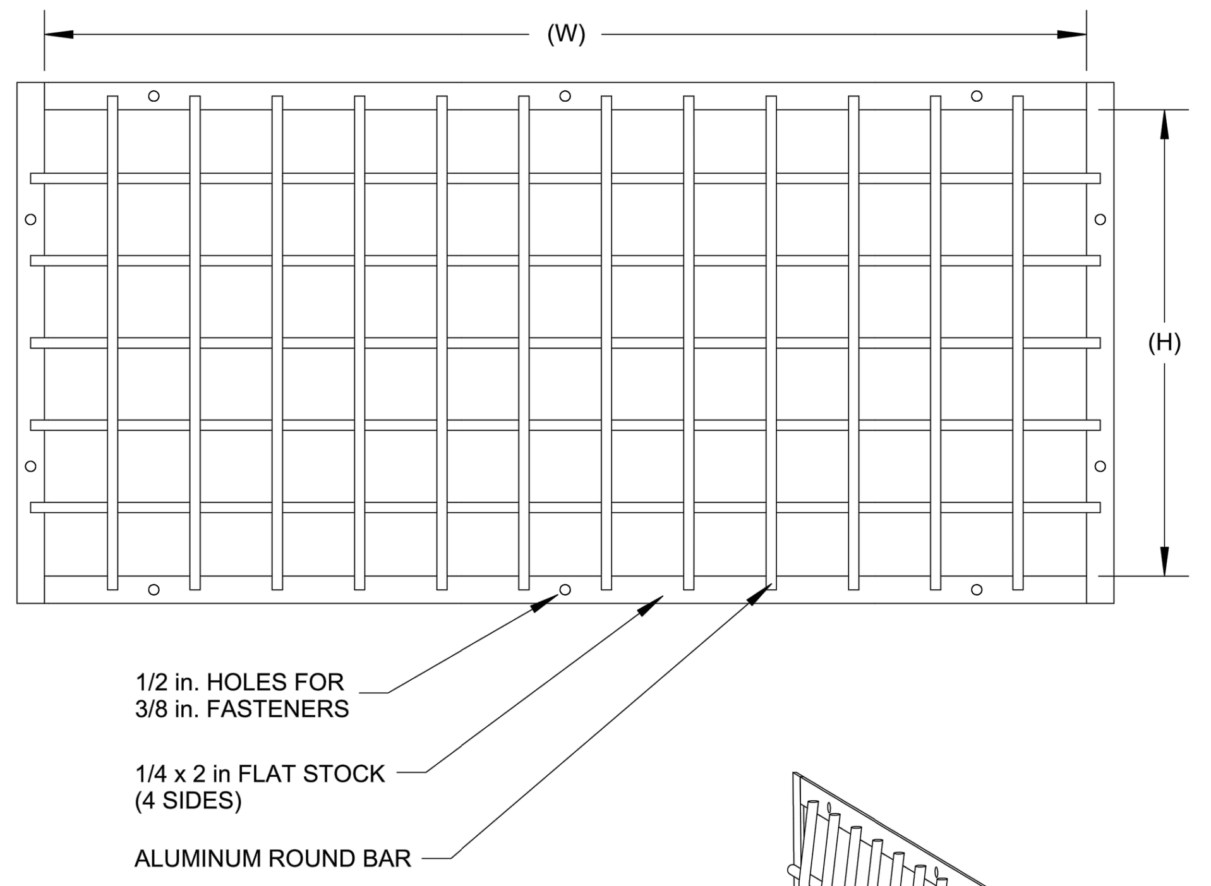
ENGINEER'S SEAL:

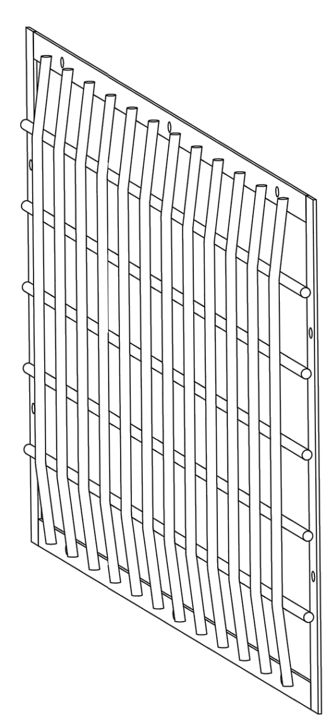
CALDWELL LAKE DAM IMPROVEMENTS
CALDWELL LAKE DAM
YORK, YORK COUNTY, SOUTH CAROLINA

SHEET TITLE: EROSION & SEDIMENTATION CONTROL DETAILS - 3

DRAWING NO: 11

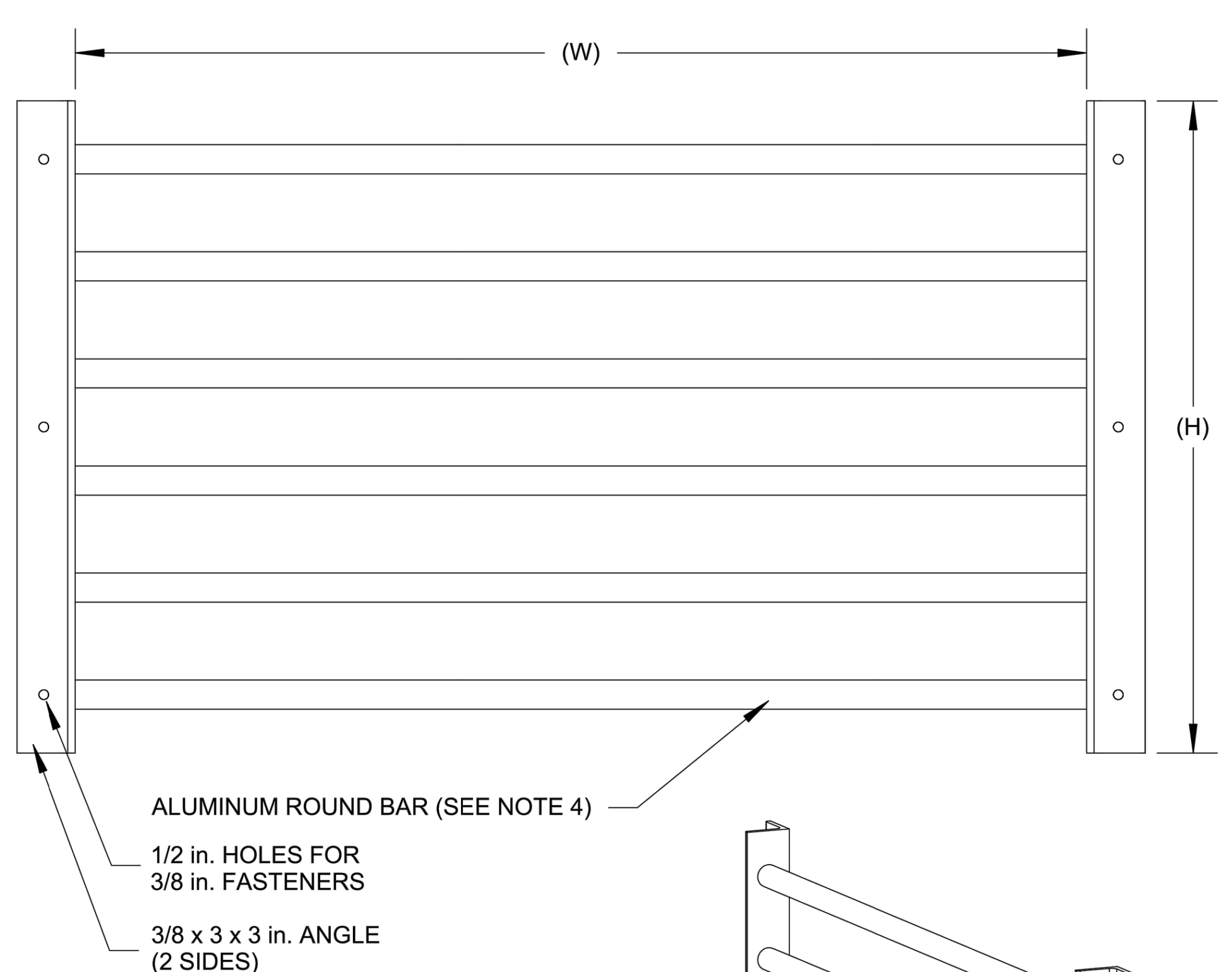
C:\Users\dave.weikle\CDG, Inc\Charlotte Projects - 1210035-01 City Of York - Lake Caldwell Dam\Project Details\Drawings\1210035-01 EROSION.dwg, 3/22/2023 3:05 PM, Dave Weikle

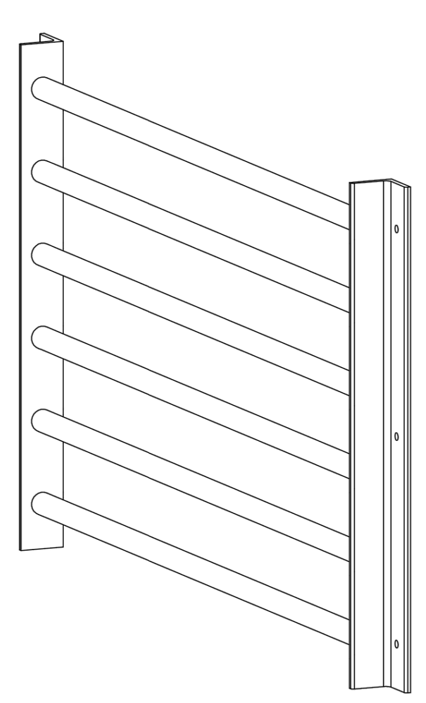




ISOMETRIC VIEW

NOTES:
1. ALL MATERIALS TO BE ALUMINUM 6061-T6 ALLOY.
2. WELD ALL INTERSECTIONS.
3. FASTEN TO CONCRETE STRUCTURE WITH 3/8 in. x 3 in. STAINLESS STEEL CONCRETE WEDGE ANCHORS AT 18 in. MAX. SPACING. MINIMUM OF (4).
4. THICKNESS OF RACK = 2 x BAR DIAMETER + 1/4 in.
5. OVERALL RACK WIDTH = (W) + 4 INCHES.
6. OVERALL RACK HEIGHT = (H) + 4 INCHES.
7. OPTIONAL - 10g STAINLESS STEEL WIRE MESH WITH 1 in. GRID TO COVER RACK.



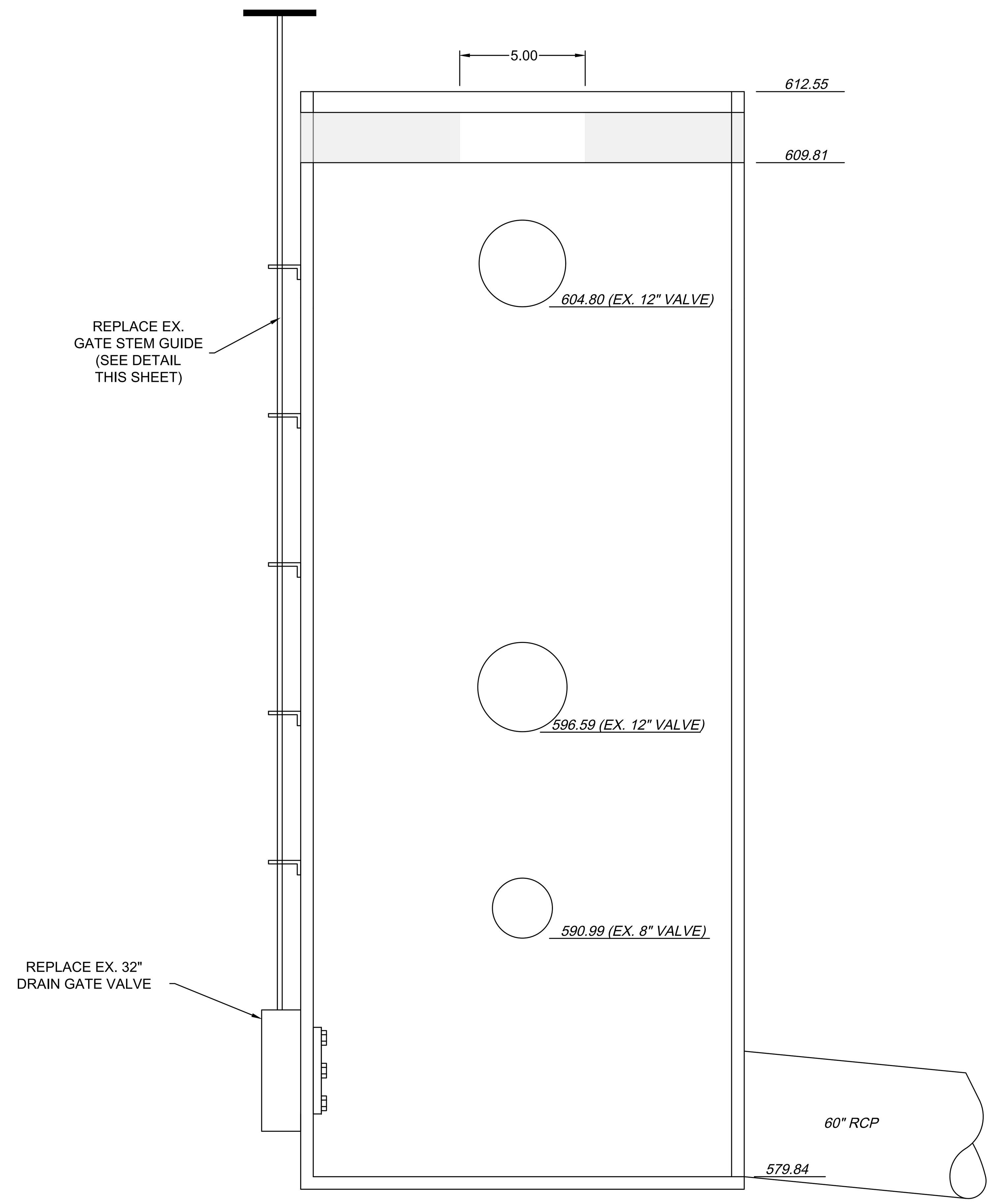


ISOMETRIC VIEW

NOTES:
1. ALL MATERIALS TO BE ALUMINUM 6061-T6 ALLOY.
2. BOTH ENDS OF BARS WELDED 360°.
3. FASTEN TO CONCRETE STRUCTURE WITH 3/8 in. x 3 in. STAINLESS STEEL CONCRETE WEDGE ANCHORS AT 18 in. MAX. SPACING. MINIMUM OF (4).
4. 1 in. DIAMETER IS SOLID ROUND BAR. LARGER THAN 1 in. DIAMETER IS ROUND TUBE WITH 1/4 in. WALL THICKNESS. BAR DIAMETER IS AVAILABLE IN 1, 1 1/2, 2, 2 1/2 in. SIZES ONLY.
5. OVERALL RACK WIDTH = (W) + 6 INCHES.
6. OVERALL RACK HEIGHT = (H)
7. OPTIONAL - 10g GALVANIZED STEEL WIRE MESH WITH 1 in. GRID TO COVER RACK.

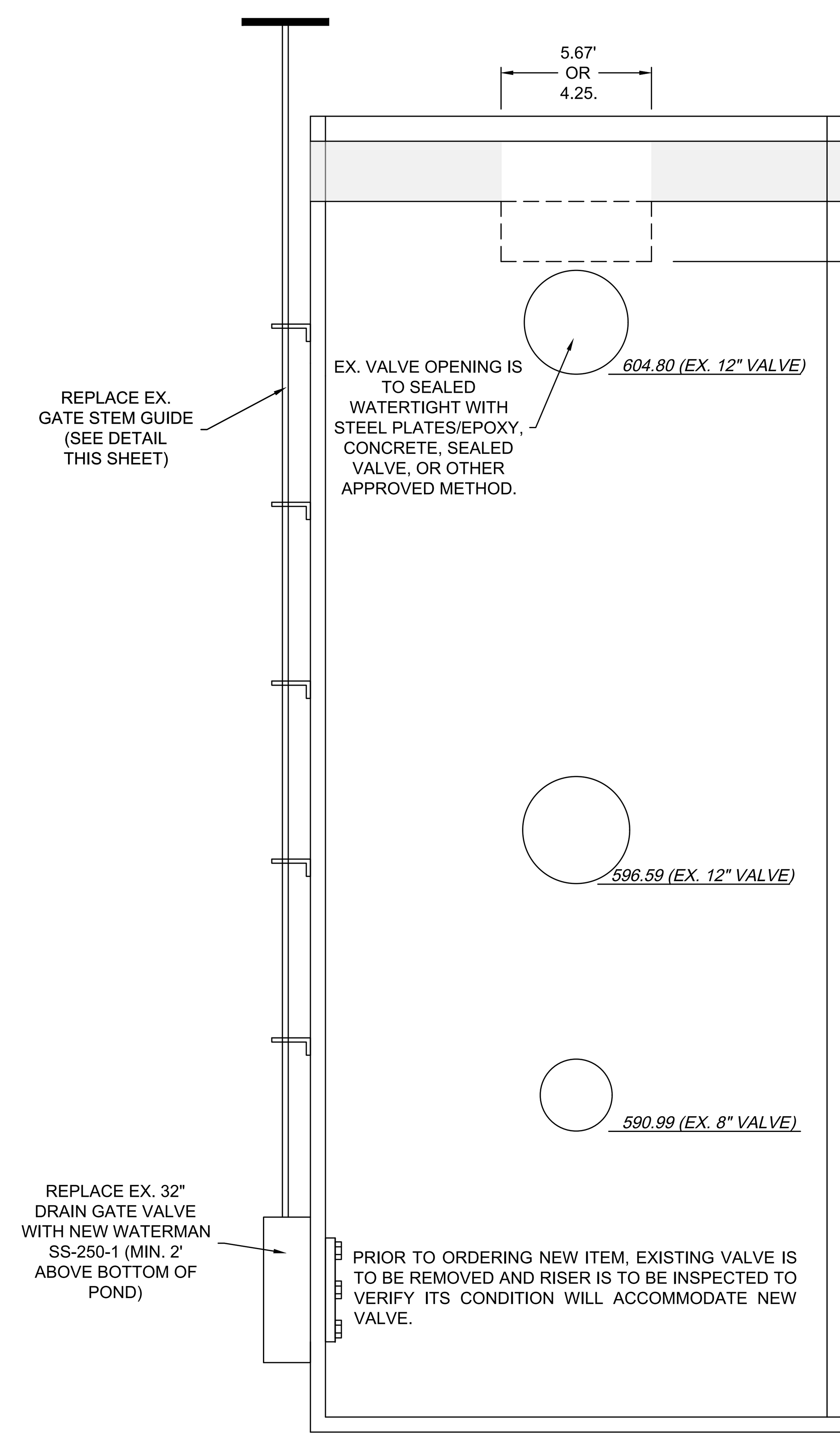
TRASH RACK GENERAL NOTES:

1. THESE TRASH RACKS ARE SHOWN AS ACCEPTABLE EXAMPLES ONLY. CONTRACTOR IS TO SUBMIT PROPOSED MANUFACTURER'S DESIGN DRAWINGS AND SPECIFICATIONS TO SHIELD ENGINEERING FOR APPROVAL PRIOR TO PURCHASE, ASSEMBLY, AND/OR INSTALLATION.
2. MATERIALS USED SHOULD BE ALUMINUM OR STAINLESS STEEL.
3. MINIMUM OPENINGS (EITHER HORIZONTAL AND/OR VERTICAL) SHOULD BE NO MORE THAN 2.5".



EX. RISER BEFORE ALTERATIONS DETAIL

NOT TO SCALE

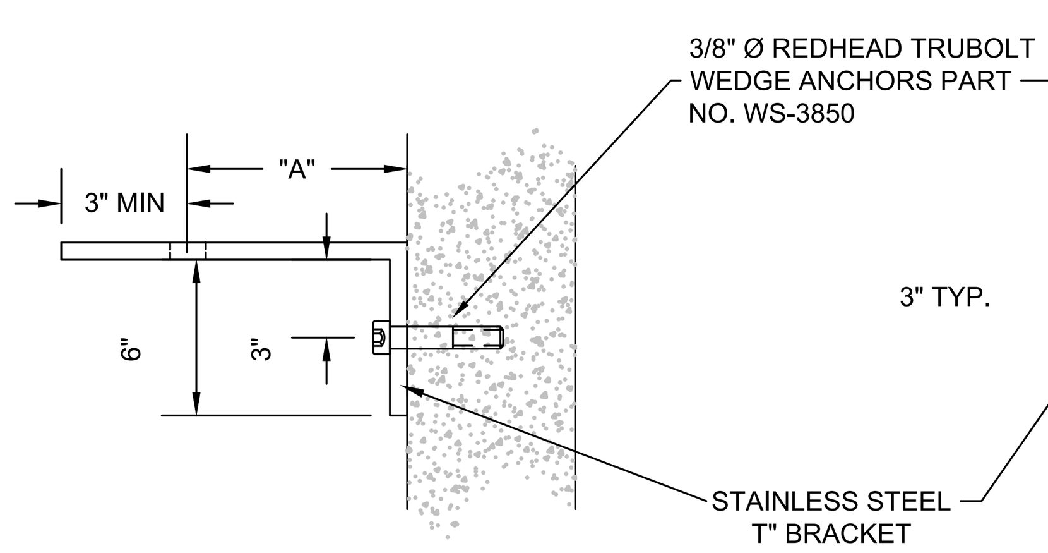


EXISTNG WEIRS ON EACH SIDE OF RISER ARE TO BE SAWCUT AND LOWERED TO AN ELEVATION OF 606.00 ON ALL FOUR (4) SIDES. BASED ON THE ORIGINAL DESIGN DRAWINGS, THE OPENINGS ON TWO SIDES ARE 5'-8" WIDE AND THE OTHER TWO ARE 4'-3" (SEE DRAWING 15). COAT NEWLY EXPOSED CONCRETE AND ANY REINFORCEMENT REBAR WITH *SIKATOP SEAL-107* WATERPROOFING CONCRETE SEALANT (OR APPROVED EQUIVALENT).

EXISTNG 8" AND 12" VALVES ARE TO BE REMOVED AND REPLACED WITH WATERMAN P-32 SLUICE GATES. PRIOR TO ORDERING NEW ITEMS, EXISTING VALVES ARE TO BE REMOVED AND RISER IS TO BE INSPECTED TO VERIFY ITS CONDITION WILL ACCOMMODATE NEW VALVES.

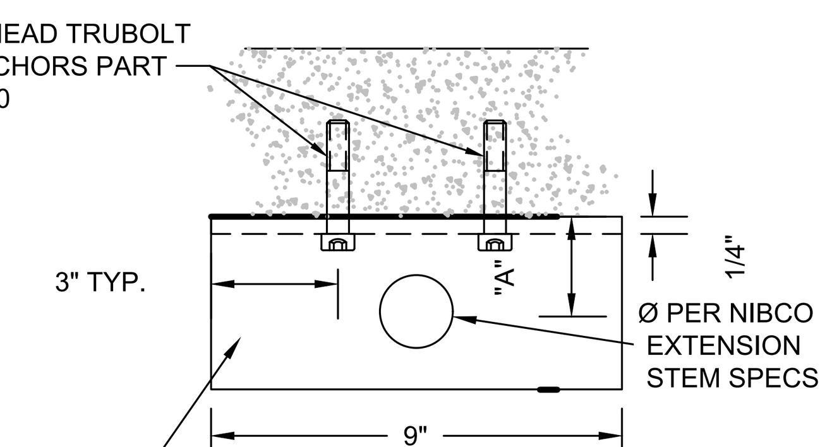
PROPOSED RISER AFTER ALTERATIONS DETAIL

NOT TO SCALE



STEM GUIDE DETAIL - PROFILE

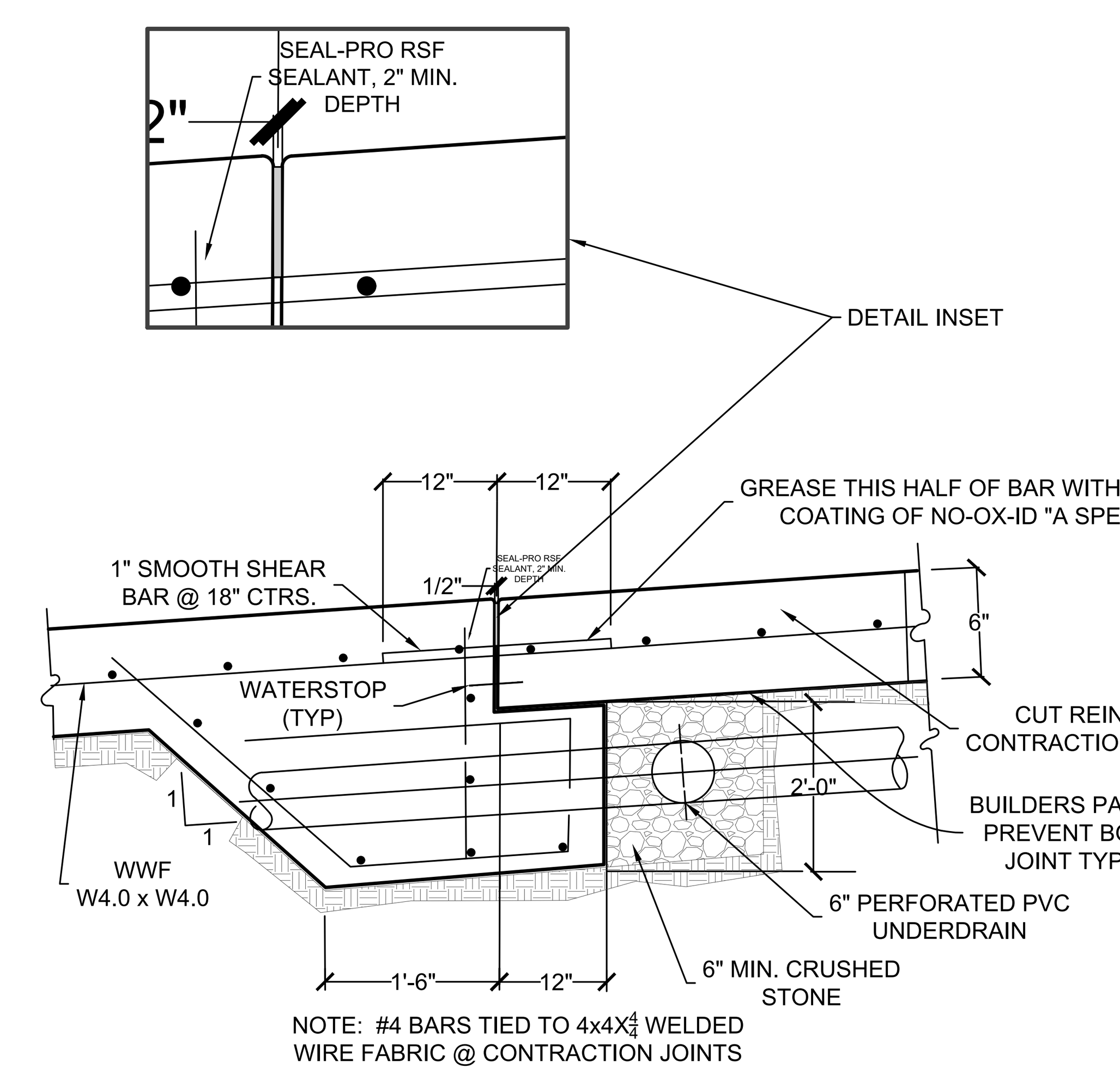
NOT TO SCALE



STEM GUIDE DETAIL PLAN VIEW

NOT TO SCALE

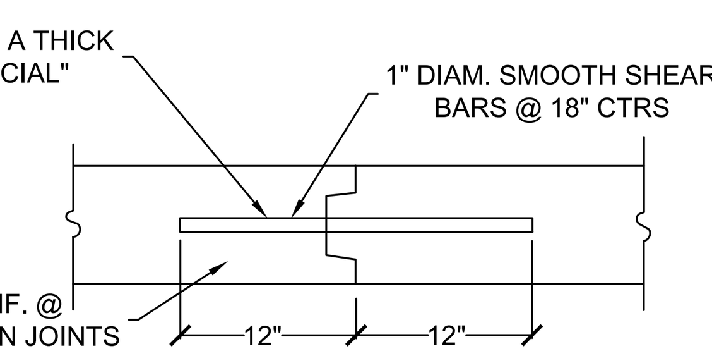
NOTE: DIMENSION "A" WILL BE ESTABLISHED BY DISTANCE BETWEEN RISER GATE VALVE HANDLE CENTER AND OUTSIDE WALL OF RISER (SEE RISER DETAIL ABOVE)



NOTE: #4 BARS TIED TO 4x4X$\frac{4}{4}$ WELDED WIRE FABRIC @ CONTRACTION JOINTS

EMERGENCY SPILLWAY CONTRACTION JOINT

N.T.S.



NOTE: REINFORCING NOT SHOWN

TYPICAL CONTRACTION JOINT

N.T.S.

CITY OF YORK
PO BOX 500
10 N. ROOSEVELT ST.
YORK, SC 29745

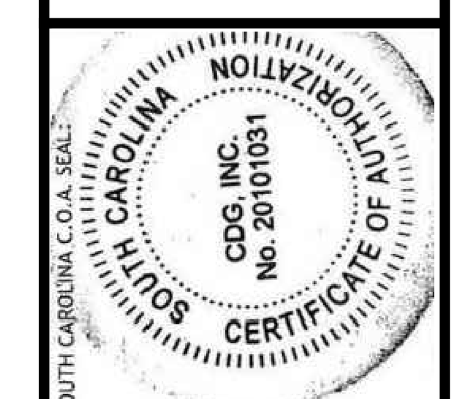
REVISIONS

REV.	DATE	COMMENTS

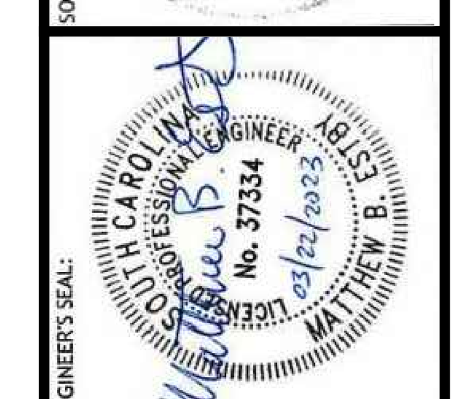
PROJECT #	1210035-01
DATE:	DECEMBER, 2022
DESIGN BY:	DW
DRAWN BY:	DW
APPROVED:	KAA
SCALE:	AS SHOWN

CDG
4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
Phone: 704-394-6913
www.cdge.com
License No. C-4973

SOUTH CAROLINA C.O.A. SEAL:



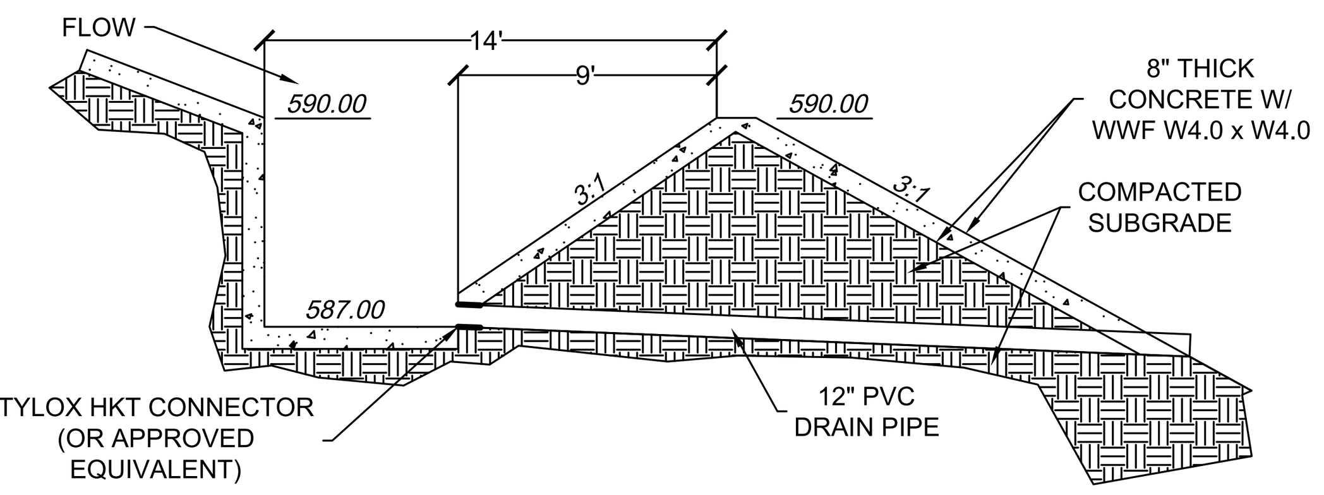
ENGINEER'S SEAL:



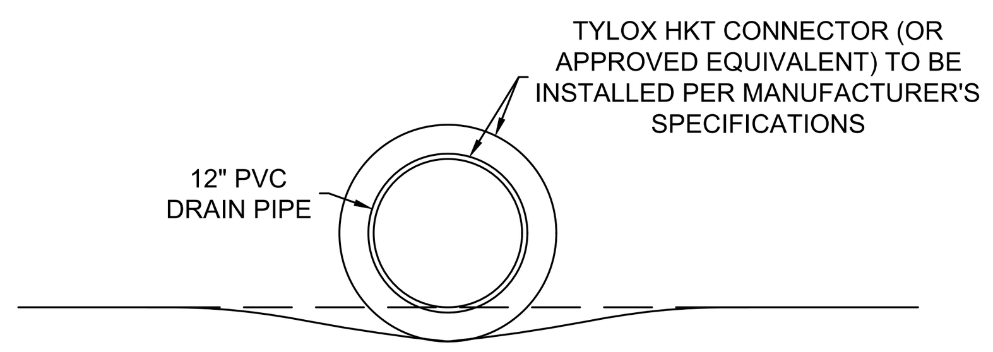
CALDWELL LAKE DAM IMPROVEMENTS
CALDWELL LAKE DAM
YORK, YORK COUNTY, SOUTH CAROLINA

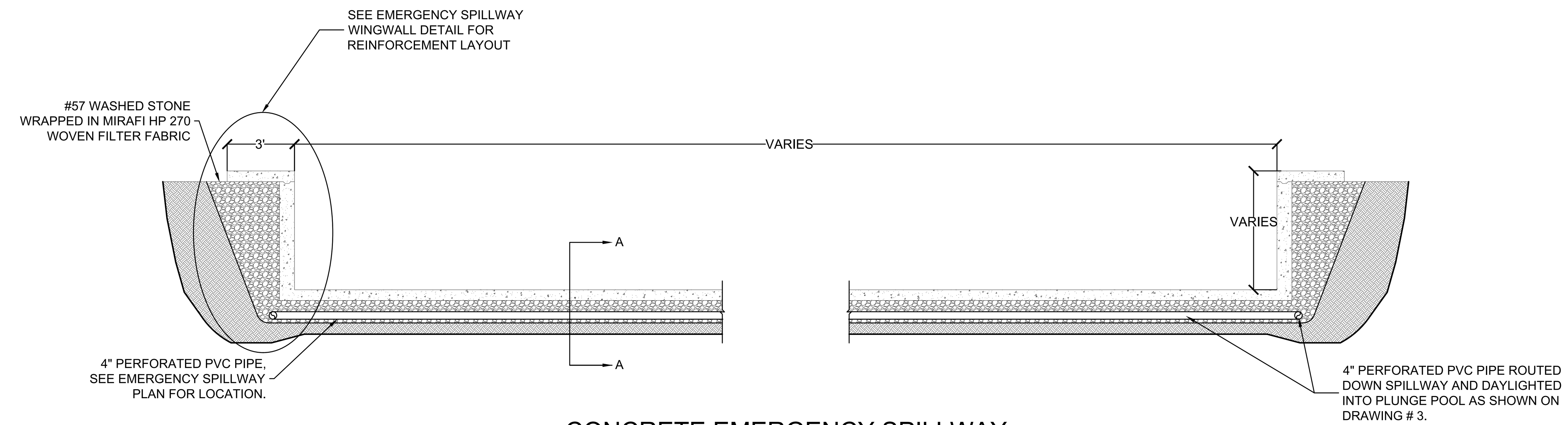
SHEET TITLE: PRINCIPAL SPILLWAY DETAILS

DRAWING NO: 12



CONCRETE EMERGENCY SPILLWAY
PLUNGE POOL DETAIL



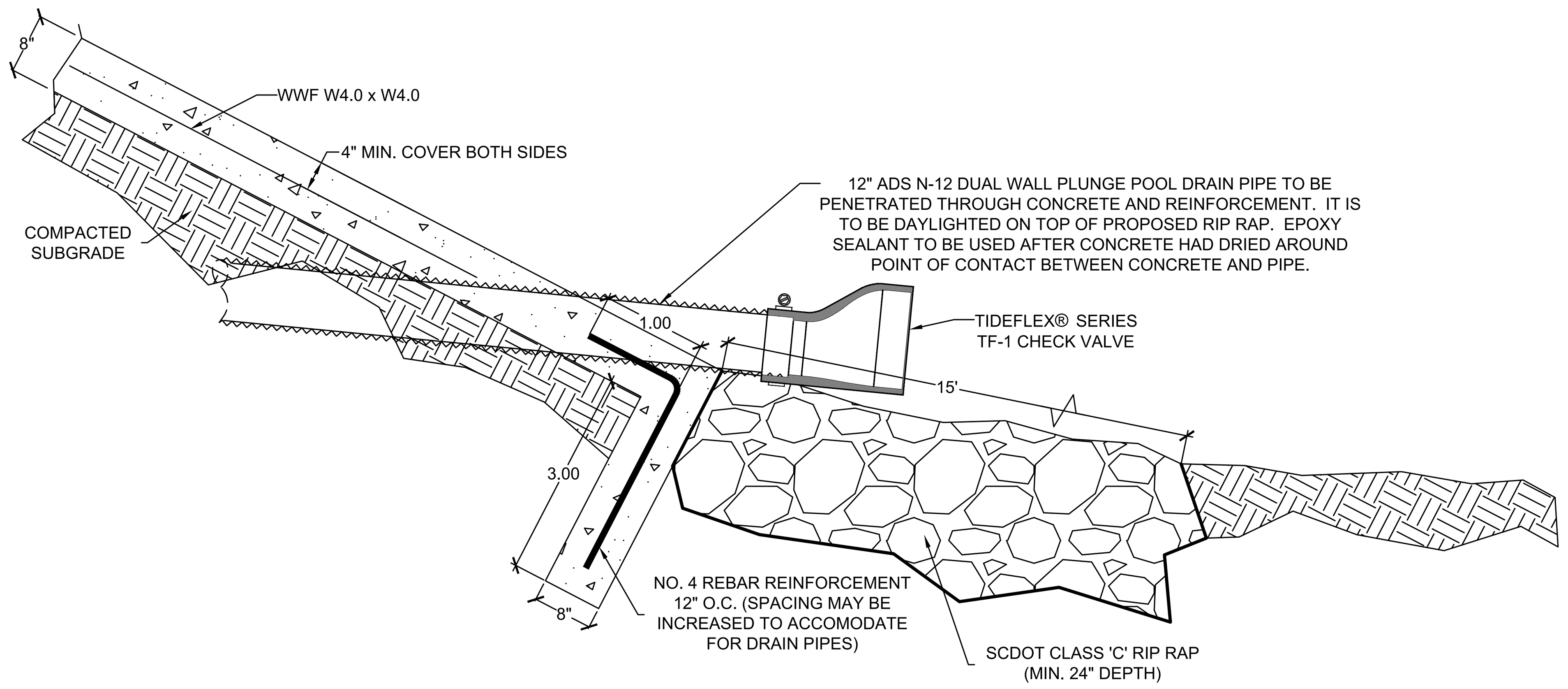


CONCRETE EMERGENCY SPILLWAY
TYPICAL SECTION

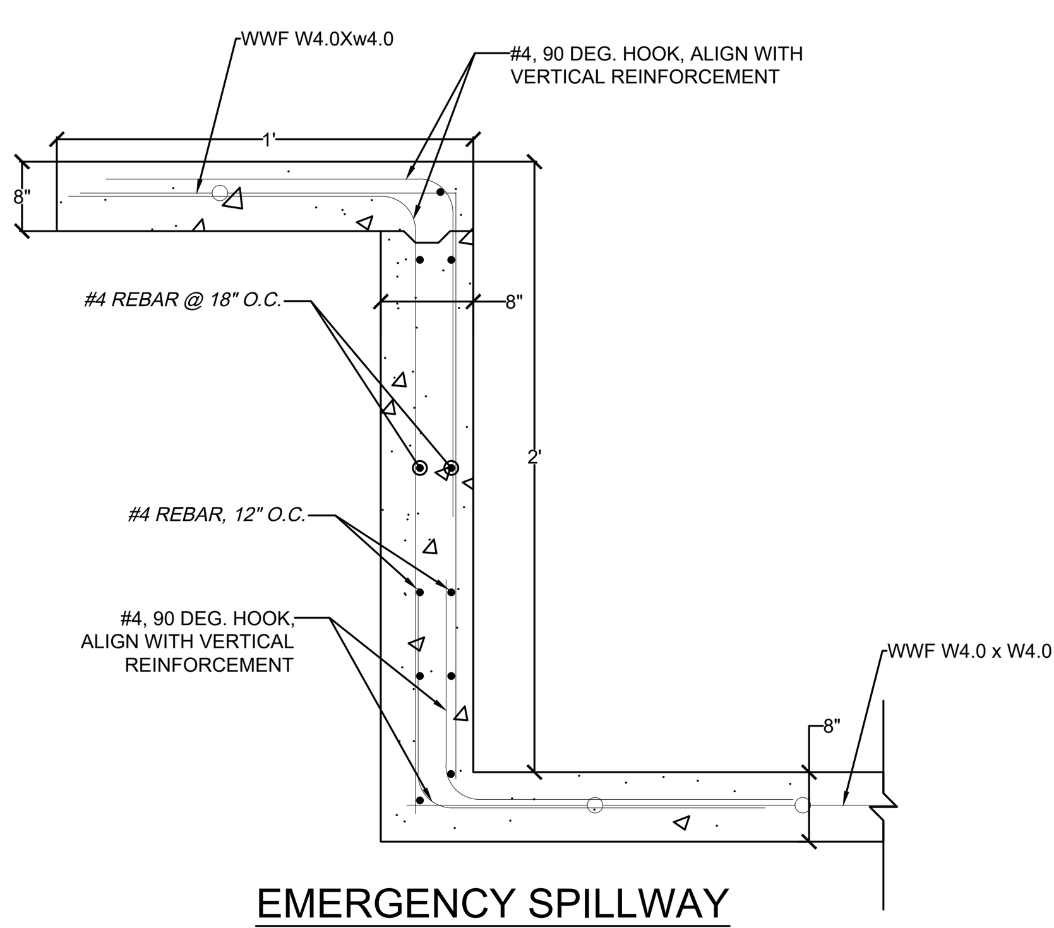
Development Length (in)				
	Compressive Strength of Concrete (psi)			
Bar Size	3000	4000	4500	5000
#3	9	8	7	7
#4	11	10	9	9
#5	14	12	12	11
#6	17	15	14	13
#7	20	17	16	15
#8	3	2	2	2
#9	25	22	21	20
#10	28	25	23	22
#11	31	27	26	24

NOTES:
1. *THE ABOVE DEVELOPMENT LENGTH VALUES ARE BASED ON NORMAL-WEIGHT CONCRETE AND GRADE 60 REINFORCEMENT BARS.*
2. *FOR EXPOXY-COATED BARS INCREASE DEVELOPMENT LENGTH BY A 1.2 MULTIPLIER.*

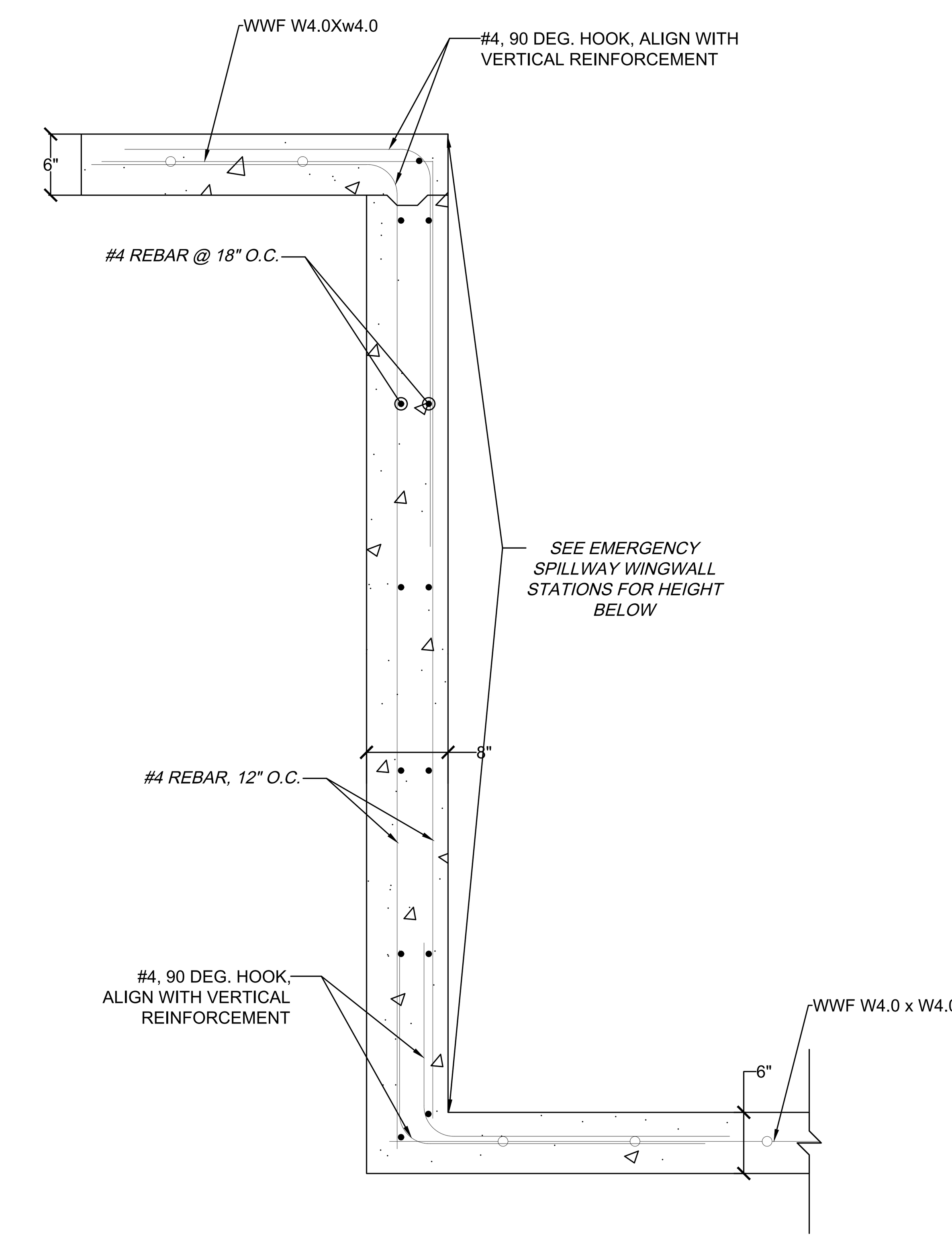
REINFORCEMENT BAR DEVELOPMENT
LENGTH TABLE



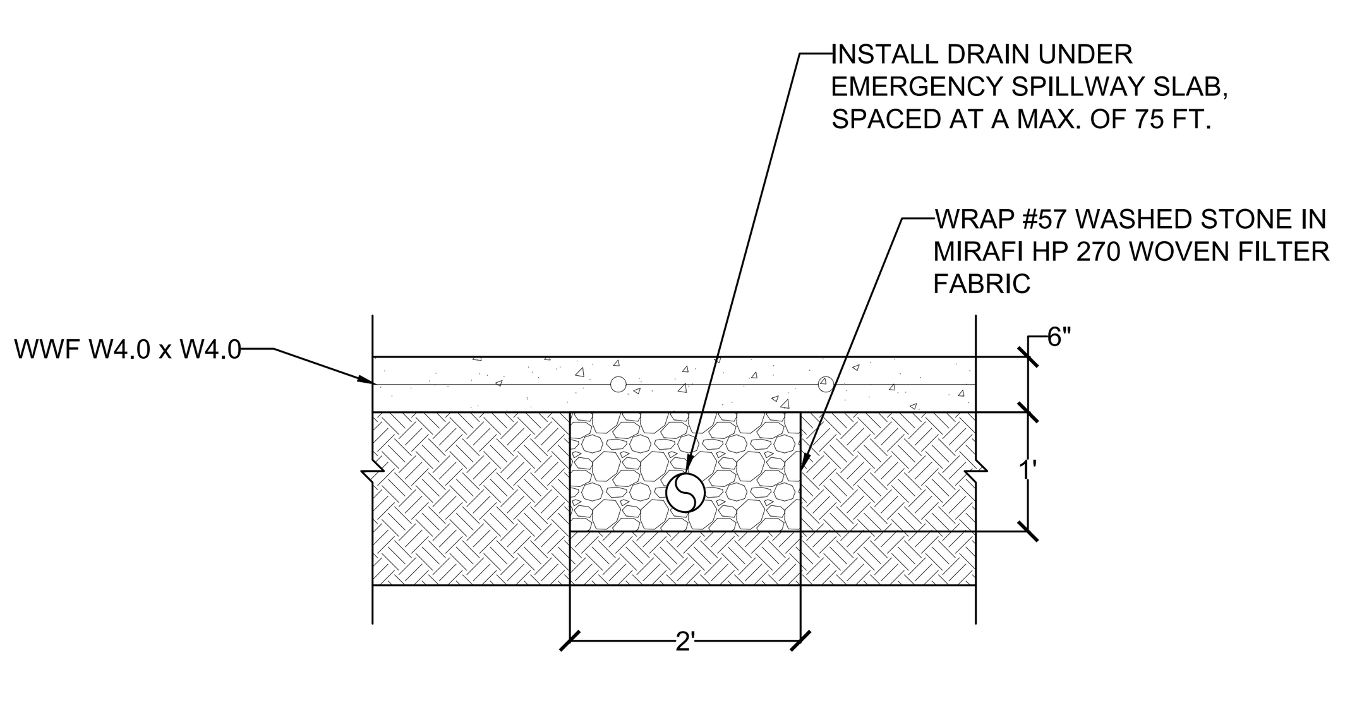
CONCRETE EMERGENCY SPILLWAY
PLUNGE POOL OVERFLOW RAMP OUTFALL



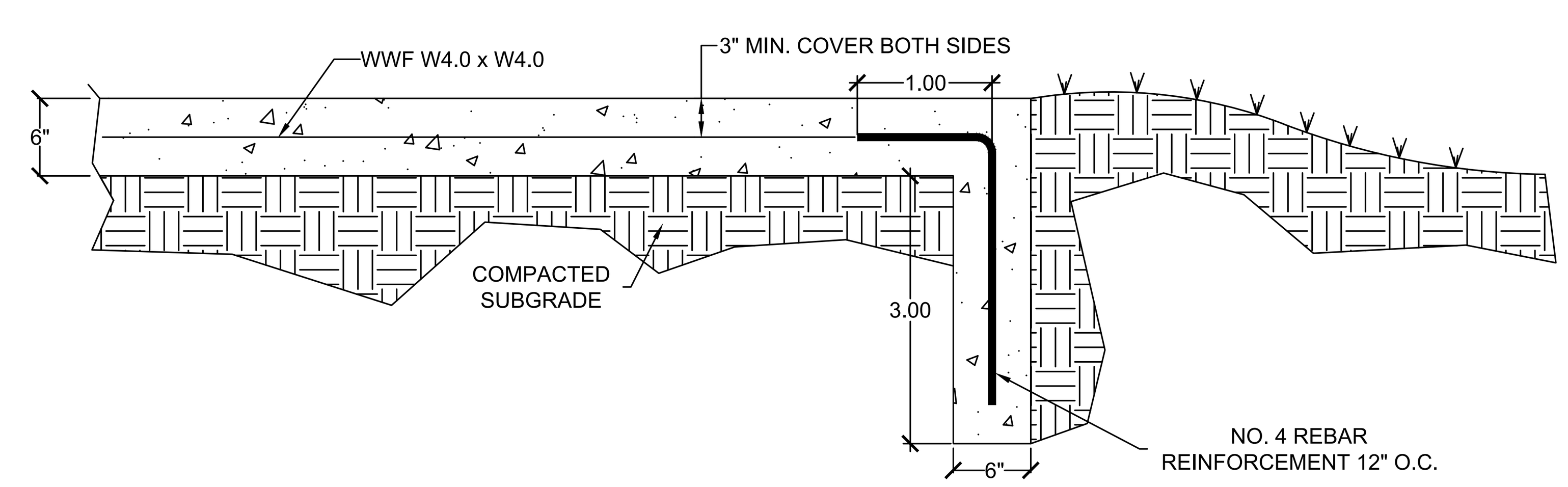
EMERGENCY SPILLWAY
OUTFALL WINGWALL DETAIL
BELOW PLUNGE POOL



EMERGENCY SPILLWAY
WINGWALL DETAIL



A-A
UNDERDRAIN DETAIL



CONCRETE EMERGENCY SPILLWAY
TRANSITION DETAIL @ ELEVATION 610.00

CITY OF YORK
PO BOX 500
10 N. ROOSEVELT ST.
YORK, SC 29745

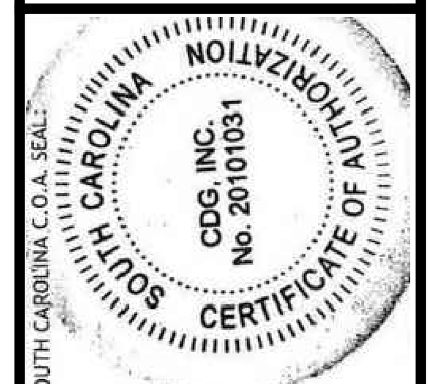
REVISIONS

REV.	DATE	COMMENTS

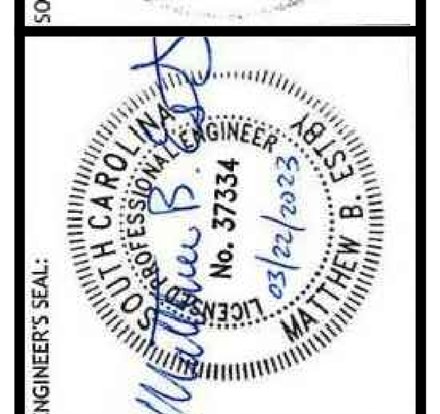
PROJECT #	1210035-01
DATE:	DECEMBER, 2022
DESIGN BY:	DW
DRAWN BY:	DW
APPROVED:	KAA
SCALE:	AS SHOWN

CDG
4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
Phone: 704-394-6913
www.cdge.com
License No. C-4973

SOUTH CAROLINA C.O.A. SEAL:



ENGINEER'S SEAL:



CALDWELL LAKE DAM IMPROVEMENTS
CALDWELL LAKE DAM
YORK, YORK COUNTY, SOUTH CAROLINA

SHEET TITLE:
EMERGENCY SPILLWAY DETAILS

DRAWING NO:
13

CONSTRUCTION SPECIFICATIONS

GENERAL

1. SUGGESTED CONSTRUCTION SEQUENCE: THE FOLLOWING CONSTRUCTION SEQUENCE IS SUGGESTED BY THE ENGINEER TO COMPLY WITH EXECUTION AND COMPLETION OF THE SCOPE OF WORK FOR THIS PROJECT AND IS NOT CONCLUSIVE OF ALL STEPS AND THEIR ORDER THAT MAY BE REQUIRED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETING THE SCOPE OF WORK SUCH THAT THE WORK IS COMPLETE AND READY FOR USE.
   a. ESTABLISHMENT OF SEDIMENTATION AND EROSION CONTROL;
   b. ESTABLISHMENT OF STAGING AREA;
   c. CLEAR & GRUB AREA BELOW DAM;
   d. MODIFY THE RISER;
   e. GRADE AND CONSTRUCT THE EMERGENCY SPILLWAY;
   f. LOWER THE PRINCIPAL SPILLWAY;
   g. INSTALL TRASH RACK ON RISER AND PLACE OUTFALL RIPRAP AT END OF BARREL;
   h. RAISE THE CREST OF THE DAM;
   i. FINE GRADE AND SEED ALL DISTURBED AREAS AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED. RESTORE ANY DAMAGE TO ROADWAY WITH ASPHALT. COLLECT AND DISCARD OF ALL TRASH AND CONSTRUCTION MATERIALS;
   j. CONDUCT AS-BUILT TOPOGRAPHIC SURVEY OF DAM STRUCTURE, RISER, SPILLWAY BARREL, AND OUTFALL RIP RAP;
   k. MAINTAIN RESERVOIR WATER ELEVATION UNTIL "APPROVAL TO IMPOUND" IS ACQUIRED FROM THE SCDHEC;
   l. REMOVE ALL EQUIPMENT AND MATERIALS FROM WORK AREA AFTER JOB COMPLETION.

2. ALL CONSTRUCTION SHALL CONFORM TO ALL APPLICABLE RULES, REGULATIONS AND STANDARDS OF THE SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL, AND ANY ADDITIONAL REGULATORY AUTHORITY.

3. THIS WORK WILL INCLUDE THE MOBILIZATION AND SET UP OF EXCAVATION EQUIPMENT AND/OR STAGING AREA REQUIRED TO COMPLY WITH THE SPECIFICATIONS AND ALL LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS. THE ESTABLISHMENT OF THE STAGING AREA WILL INCLUDE ESTABLISHING THE SAFETY BOUNDARIES, LOADING AREAS, AND OTHER SUPPORT STRUCTURES REQUIRED TO PERFORM WORK REQUIRED IN THE CONTRACT DOCUMENTS. THE WORK INCLUDES OBTAINING THE REQUIRED PERMITS, INSURANCE, UTILITY LOCATIONS AND ANY OTHER PRE-CONSTRUCTION ITEMS NECESSARY FOR THE START OF WORK.

4. THIS WORK INCLUDES THE COMPLIANCE WITH ANY AND ALL APPLICABLE OSHA SAFETY REGULATIONS. THIS COMPLIANCE WILL INCLUDE THE CONTRACTOR PRODUCTION OF A SITE SPECIFIC HEALTH AND SAFETY PLAN THAT INCLUDES THE REROUTING OF PEDESTRIANS AND TRAFFIC, WARNING AND/OR CAUTION SIGNS, PROTECTIVE EQUIPMENT REQUIRED ON SITE AND OTHER APPLICABLE ITEMS REQUIRED BY LOCAL, STATE AND FEDERAL REGULATIONS.

5. CONTRACTOR SHALL ASSUME THE RISKS OF OVERHEAD OR UNDERGROUND PUBLIC UTILITY AND PRIVATE LINES, PIPES, EXISTING STRUCTURES AND PROPERTY. DAMAGES AND EXPENSES REST SOLELY WITH THE CONTRACTOR. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COMPLY WITH THE UNINTERRUPTED UTILITY NEEDS FOR THE COMMUNITY. IN THE EVENT UTILITIES MUST BE CONTINUED THROUGH THE AREA OF CONSTRUCTION, CONTRACTOR SHALL MAKE PROVISIONS TO PROVIDE TEMPORARY UTILITY BYPASSES AROUND THE AREA OF CONSTRUCTION ACTIVITY.

6. CONTRACTOR SHALL REMOVE SURPLUS EXCAVATED MATERIAL, RUBBISH AND OTHER CONSTRUCTION DEBRIS ON A DAILY BASIS.

7. CONTRACTOR SHALL EXERCISE THE NECESSARY MEANS AND METHODS TO CONTROL DUST ON THE SITE DURING EXCAVATION, BACKFILL AND COMPACTION.

8. OUTSIDE RIGHTS-OF-WAY: CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO PROTECT TREES, SHRUBS, LAWNS AND OTHER LANDSCAPING FROM DAMAGE. DAMAGES ARE THE CONTRACTOR'S OBLIGATION TO REPAIR AND REPLACE AT NO EXPENSE TO THE OWNER.

9. THIS WORK INCLUDES FINAL CLEAN-UP OF THE SITE AT THE COMPLETION OF THE PROJECT. FINAL CLEAN-UP WILL INCLUDE BUT IS NOT LIMITED TO REMOVING FROM THE JOB SITE ALL TOOLS, SURPLUS MATERIALS, EQUIPMENT, SCRAP, DEBRIS, WASTE, AND TEMPORARY ENCLOSURES, UTILITIES, ETC. WASTE DISPOSAL WILL BE IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL LAW AND SUBJECT TO THE APPROVAL OF THE OWNER AND WILL BE AT THE SOLE EXPENSE OF THE CONTRACTOR.

10. UNDERGROUND UTILITY LINE LOCATIONS (IF ANY) ARE APPROXIMATE ONLY, AND IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE EXACT LOCATION OF ANY SUCH UTILITIES. UTILITIES SHOWN ON THE PLANS ARE FOR THE CONTRACTORS' CONVENIENCE ONLY. THE ENGINEER ASSUMES NO RESPONSIBILITY TO VERIFY ALL UTILITY LOCATIONS. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL DAMAGES TO EXISTING UTILITIES. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY IF ANY EXISTING UTILITIES WILL EFFECT OR IMPEDE THE PROGRESSION OR COMPLETION OF THE DESIGN INTENT OF THESE CONSTRUCTION DOCUMENTS.

11. THE CONTRACTOR SHALL COORDINATE RELOCATION OF ANY EXISTING UTILITIES WITH THE APPROPRIATE UTILITY ENTITY PRIOR TO THE START OF ANY CONSTRUCTION.

12. THE OWNER SHALL DIRECT THE CONTRACTOR AS TO WHAT EXISTING VEGETATION ON-SITE SHALL BE REMOVED BEYOND THE CLEARING LIMITS AS SHOWN AND NOTED HERON. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION IN PROTECTING EXISTING TREES. COORDINATE ALL TREE REMOVAL WITH OWNER PRIOR TO THE START OF ANY CONSTRUCTION.

13. MISCELLANEOUS MAPPING NOTES:
   a. UTILITIES SHOWN ARE LOCATIONS OF GROUND IDENTIFIABLE ITEMS. ADDITIONAL UTILITIES MAY EXIST ABOVE OR BELOW THE GROUND. THE SURVEYOR ACCEPTS NO RESPONSIBILITIES FOR THE COMPLETENESS OF THIS DATA.
   b. THIS PROPERTY IS SUBJECT TO ALL RIGHT-OF-WAYS AND EASEMENTS SHOWN OR NOT SHOWN, RECORDED OR NOT RECORDED.

13. THE CONTRACTOR SHALL REMOVE AND ABANDON EXISTING UTILITIES ONLY AFTER APPROVAL FROM ALL INTERESTED PARTIES. THESE FACILITIES MAY INCLUDE, BUT NOT BE LIMITED TO: EXISTING ON-SITE DRAINAGE PIPING, ON-SITE PRIVATE ELECTRICAL LINES AND APPURTENANCES, ABANDONED EROSION CONTROL DEVICES AND STRUCTURES. THE CONTRACTOR SHALL COORDINATE ANY AND ALL ABANDONMENT AND/OR RELOCATION WITH THE APPROPRIATE UTILITY COMPANIES OR ENTITIES. ANY DISPOSAL OF SAID FACILITIES SHALL BE DONE IN ACCORDANCE WITH LOCAL UTILITY AND/OR GOVERNMENTAL REGULATIONS. RELOCATION AND/OR ABANDONMENT OF SAID FACILITIES AND/OR UTILITIES SHALL BE DONE AT THE EXPENSE OF THE OWNER/DEVELOPER. PERMITS (IF ANY) SHALL BE OBTAINED BY THE CONTRACTOR AND/OR OWNER/DEVELOPER.

14. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSURE THAT PRIOR TO ORDERING PROJECT MATERIALS, THAT THE MOST CURRENT SET OF CONSTRUCTION DOCUMENTS HAVE BEEN OBTAINED FROM THE OWNER/DEVELOPER INCLUDING, BUT NOT LIMITED TO, THE PERMITTED SET(S) FROM ALL APPLICABLE AGENCIES AS APPROPRIATE. THE PROJECT ENGINEER ACCEPTS NO RESPONSIBILITY FOR IMPROPER ORDERING OF MATERIALS.

TRAFFIC CONTROL

1. THE CONTRACTOR SHALL ESTABLISH A TRAFFIC CONTROL PLAN THAT SHALL INCLUDE WARNING SIGNS SET OUT FOR A PERIOD OF ONE WEEK PRIOR TO START OF CONSTRUCTION ACTIVITY, WARNING LOCAL RESIDENTS AND VISITORS OF IMPENDING CONSTRUCTION ACTIVITY. THIS TRAFFIC CONTROL PLAN SHALL BE APPROVED BY OWNER. THESE WARNING SIGNS SHALL BE LOCATED BEFORE THE PROSPECTIVE WORK AREA AND SHALL REMAIN POSTED THROUGHOUT THE DURATION OF THE PROJECT. ALL ROAD SIGNS SHALL COMPLY WITH SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION (SCDOT) GUIDELINES AND STANDARDS.

2. UPON THE COMPLETION OF THE PROJECT THE CONTRACTOR SHALL RESTORE THE ROAD PAVEMENT AND SURROUNDING AREAS TO A SIMILAR CONDITION AS THEY WERE PRIOR TO THE COMMENCEMENT OF THE WORK OUTLINED HEREIN. THESE REPAIRS SHALL BE MADE TO THE SATISFACTION OF THE OWNER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INCLUDE THOSE REPAIR COSTS, IF FOUND NECESSARY, IN THE COST ESTIMATE/BUDGET. SUCH REPAIR COSTS WILL NOT BE CONSIDERED NOR ACCEPTED AS A CHANGE ORDER DURING THE PROJECT.

3. AT ALL TIMES THE CONTRACTOR SHALL CLEAR AWAY SPILLAGE OF MATERIALS ON ROADWAYS CAUSED BY HAULING.

EROSION AND SEDIMENTATION CONTROL

1. THIS ITEM CONSISTS OF ALL WORK ASSOCIATED WITH SEDIMENT AND EROSION CONTROL FOR THE GRADING AND CONSTRUCTION PROJECT. EXAMPLES OF SEDIMENT AND EROSION CONTROL MEASURES ARE AS FOLLOWS:

   A. INSTALLATION OF SILT FENCE
   B. INSTALLATION OF SILT FENCE OUTLETS, TUBE SOCKS, AND/OR CHECK DAMS
   C. TEMPORARY AND PERMANENT GRASSING/SEEDING.

2. CONTRACTOR SHALL DO ALL THAT IS REASONABLY POSSIBLE TO MINIMIZE SOIL EROSION AND SILTATION CAUSED BY THE OPERATIONS. PROTECTIVE MEASURES WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO "RETROFIT" THE IMMEDIATE AREAS OF THE VARIOUS CONSTRUCTION ACTIVITIES. POSSIBLE PROTECTIVE MEASURES MAY INCLUDE THE ESTABLISHMENT OF SILT FENCE IN AREAS OF IMMEDIATE ACTIVITIES, TEMPORARY DIVERSION DITCHES/COFFER DAM TO KEEP OFFSITE STORMWATER AWAY FROM WORK AREA, STRAW MATTING IN AREAS WHERE FINAL GRADING HAS TAKEN PLACE, ETC. SPECIAL CARE SHOULD BE TAKEN TO ENSURE THAT EROSIVE CONDITIONS AND/OR SEDIMENTATION DO NOT TAKE PLACE AT THE EXISTING OUTFALL CREEK/CHANNEL.

3. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THOSE SEDIMENT AND EROSION CONTROL MEASURES IMPLEMENTED WITHIN THE PROJECT AREA THROUGHOUT THE LIFE OF THE PROJECT, UNTIL SUCH TIME A VEGETATIVE COVER (95% GROUND COVER OF SOWN VEGETATION) IS ESTABLISHED OVER ALL DISTURBED AREAS FOR PERMANENT STABILIZATION.

4. IN ADDITION, THE OWNER MAY PERFORM REGULAR INSPECTIONS OF THE SITE TO MAKE AN ENVIRONMENTAL ASSESSMENT OF THE CONTRACTOR'S OPERATIONS AND MAY ISSUE A REPORT DETAILING FINDINGS AND RECOMMENDATIONS. CONTRACTOR SHALL DEVELOP AN ACTION PLAN TO RESOLVE ANY/ALL DEFICIENCIES AND RECOMMENDATIONS WITHIN TWO WORKING DAYS AFTER RECEIVING THE REPORT. REPEAT FINDINGS ARE CONSIDERED TO BE UNACCEPTABLE BY THE OWNER AND WILL BE GROUNDS FOR POTENTIAL CONTRACT TERMINATION.

5. PAYMENT FOR SEDIMENT AND EROSION CONTROL MEASURES/EFFORTS SHALL BE INCLUSIVE IN THE CONTRACTOR'S UNIT PRICE QUOTE.

REMOVAL OF SEDIMENT FROM WORK AREA

1. AFTER THE LAKE HAS BEEN PROPERLY DRAINED AND THE WORK AREA ALLOWED TO DRY OUT, CONTRACTOR IS TO USE EXCAVATION EQUIPMENT TO BEGIN REMOVING SEDIMENT FROM AROUND THE EXISTING RISER. ALL SEDIMENT SHOULD BE DRIED TO THE POINT WHERE THERE ARE NO WATER LEAKS FROM THE TRANSPORTATION VEHICLES SHOULD OFFSITE TRANSIT BECOME NECESSARY.

CONSTRUCTION OF RISER

1. THE RISER SHALL BE CONSTRUCTED AS SHOWN ON DRAWINGS. CONTRACTOR CAN SUBSTITUTE SPECIFIED MATERIALS FROM THOSE SHOWN ON THE DRAWING UPON THE RECEIPT AND APPROVAL FOR THE PROPOSED SUBSTITUTION FROM THE ENGINEER.

2. CONTRACTOR SHALL INSTALL 32-INCH WATERMAN SS-250-1 SLIDE GATE VALVE ON THE BOTTOM OUTSIDE SECTION OF THE RISER. CONTRACTOR TO VERIFY VALVE HAS A SEATING PRESSURE OF 50' OR HIGHER OR APPROVED EQUIVALENT. THE GATE VALVE STEM AND HANDLE SHALL BE ASSEMBLED AS SHOWN ON THE DRAWINGS AND PER MANUFACTURER'S SPECIFICATIONS.

3. EXISTING VALVE AT ELEVATION 604.80 IS TO PLUGGED SO THAT IT IS NO LONGER IN USE. THIS CAN BE DONE WITH THE USE OF A STEEL PLATE AND WATERPROOF SEALANT, CREATING "GAP" BETWEEN TOP OF VALVE HOLE AND PROPOSED WEIR ELEVATION AT 606.00 TO ALLOW FOR CONCRETE TO FILL VALVE HOLE GAP, OR OTHER ACCEPTABLE METHOD APPROVED BY ENGINEER.

TRASH RACK

1. EXAMPLE TRASH RACKS TO BE PLACED IN FRONT OF EACH OF THE FOUR (4) WEIR OPENINGS ARE SHOWN ON DRAWING #12. CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL SHOP DRAWINGS REGARDING THE SPILLWAY TRASH RACKS AND GATE VALVE STEM, STEM GUIDES, & HANDLE PRIOR TO ORDERING OR MANUFACTURING THESE COMPONENTS.

CONCRETE SPECIFICATIONS

1. SCOPE:
   A. FURNISH, POUR, FINISH AND CURING OF PORTLAND CEMENT CONCRETE AS REQUIRED TO MODIFY THE RISER AND CONSTRUCT THE EMERGENCY SPILLWAY.

2. DELIVERY TICKETS:
   A. A DELIVERY TICKET SHALL ACCOMPANY EACH LOAD OF CONCRETE FROM THE BATCH PLANT. TICKETS MUST BE SIGNED BY THE CONTRACTOR'S REPRESENTATIVE, NOTED AS TO TIME AND PLACE OF POUR AND KEPT IN A RECORD AT THE SITE. MAKE SUCH RECORDS AVAILABLE FOR INSPECTION UPON REQUEST BY THE ENGINEER.

3. ACI COMPLIANCE:
   A. CAST-IN-PLACE CONCRETE WORK SHALL CONFORM TO ACI 301, STRUCTURAL CONCRETE FOR BUILDINGS, EXCEPT AS MODIFIED BY THESE SPECIFICATIONS OR THE DRAWINGS.

4. MATERIALS:
   A. FORMWORK:
      1. WOOD: PROVIDE PANELS NOT LESS THAN 5/8 INCH THICK PLYWOOD
      2. STEEL: METAL FORMS OF A PRE-ENGINEERED STANDARD DESIGN SHALL BE FORMED AS SHOWN ON THE DRAWINGS.
   B. CEMENT:
      1. PORTLAND CEMENT: ASTM C 150 OF THE FOLLOWING TYPE(S): TYPE I, NORMAL CONCRETE
   C. WATER: POTABLE QUALITY, FREE FROM DELETERIOUS AMOUNTS OF ACIDS, ALKALIS, AND ORGANIC SUBSTANCES
   D. FINE AND COARSE AGGREGATES: ASTM C33
   E. REINFORCING STEEL:
      1. REINFORCEMENT BARS: ASTM A615, GRADE 60, DEFORMED STEEL REINFORCING BARS. ALL REINFORCEMENT SHALL BE FREE FROM RUST, OIL, GREASE, PAINT OR OTHER UNSUITABLE MATERIAL
      2. WIRE: 4 X 4 X W1.4 X W1.4 WWF
   F. EPOXY:
      1. ALL EPOXY SHALL BE HILTI HIT-HY 200 OR EQUIVALENT

5. CONCRETE QUALITY:
   A. MIX AND DELIVER CONCRETE IN ACCORDANCE WITH ASTM C94.
   B. SELECT PROPORTIONS FOR NORMAL WEIGHT CONCRETE IN ACCORDANCE WITH ACI 301.
   C. PROVIDE CONCRETE TO THE FOLLOWING CRITERIA:
      1. COMPRESSIVE STRENGTH (7 DAYS): 2800 PSI
      2. COMPRESSIVE STRENGTH (28 DAYS): 4000 PSI.
   D. USE ACCELERATING ADMIXTURES IN COLD WEATHER ONLY WHEN APPROVED BY ENGINEER. USE OF ADMIXTURES WILL NOT RELAX COLD WEATHER PLACEMENT REQUIREMENTS.
   E. USE CALCIUM CHLORIDE ONLY WHEN APPROVED BY ENGINEER.
   F. USE SET RETARDING ADMIXTURES DURING HOT WEATHER ONLY WHEN APPROVED BY ENGINEER.
   G. ADD AIR ENTRAINING AGENT TO NORMAL WEIGHT CONCRETE MIX FOR ALL CONCRETE WORK.
   H. SUBMIT CONCRETE MIX DESIGN FOR APPROVAL BY THE ENGINEER.

6. INSPECTION:
   A. NOTIFY ENGINEER 48 HOURS BEFORE PLACING CONCRETE SO THEY CAN INSPECT PLACEMENT OF METAL REINFORCEMENT.
   B. VERIFY THAT ITEMS TO BE EMBEDDED IN CONCRETE ARE SECURED IN PLACE AND BLOCK-OUTS IN FORMWORK ARE SECURED IN PLACE AS REQUIRED.

7. FORM INSTALLATION:
   A. GENERAL: CONSTRUCT FORMS IN ACCORDANCE WITH ACI 347 TO REQUIRED DIMENSIONS, PLUMB, STRAIGHT AND MORTAR TIGHT, AND PASTE TIGHT WHERE APPEARANCE IS IMPORTANT.
   B. EARTH FORMS: WHERE SOIL CONDITIONS WILL PERMIT EXCAVATION TO ACCURATE SIZES WITHOUT BRACING, AND SOIL SUBSIDENCE CAN BE PREVENTED DURING THE CONCRETE POUR, EARTH FORMS MAY BE USED. BEFORE CONCRETE IS PLACED, LIGHTLY WET EARTH FORMS, BUT NOT TO A MUDDY CONDITION.

8. FORM REMOVAL:
   A. REMOVE FORMS WITHOUT DAMAGE TO CONCRETE IN A MANNER TO INSURE COMPLETE SAFETY TO THE STRUCTURE.

9. REINFORCEMENT INSTALLATION:
   A. PLACING:
      A.1. PLACE METAL REINFORCEMENT IN ACCORDANCE WITH ACI 318 AND THE CRSI DESIGN HANDBOOK (MOST CURRENT EDITIONS).
      A.2. WHEN OBSTRUCTIONS INTERFERE WITH THE PLACEMENT OF REINFORCING, PASS SUCH OBSTRUCTIONS BY PLACING REINFORCING AROUND AND NOT BENDING THE REINFORCING TO CLEAR THE OBSTRUCTIONS.
      A.3. INSTALL WELDED WIRE FABRIC AS INDICATED, LAPPING JOINTS SIX INCHES AND WIRING SECURELY. EXTEND WELDED WIRE FABRIC TO WITHIN TWO INCHES OF SIDES AND ENDS OF SLABS.
   B. CONCRETE REINFORCEMENT PROTECTION:
      B.1. ON EXTERIOR EXPOSED WORK, NO TIES OR SPACERS WILL BE PERMITTED TO REMAIN WITHIN 3/4 INCHES OF THE FINISHED SURFACES.

1. CONCRETE INSTALLATION:
   A. IN GENERAL, CONDUCT CONCRETE PLACEMENT WORK IN ACCORDANCE WITH ACI 304 AND SUCH ADDITIONAL REQUIREMENTS AS SPECIFIED HEREIN.
   B. DEPOSITING SHALL BE PERFORMED ACCORDING TO THE STANDARD INDUSTRY PRACTICE.
   C. CONSOLIDATION:
      C.1. CONSOLIDATE CONCRETE BY VIBRATION, SPADING, RODDING OR OTHER MANUAL METHODS. WORK CONCRETE AROUND REINFORCEMENT, EMBEDDED ITEMS AND INTO CORNERS: ELIMINATE ALL AIR OR STONE POCKETS AND OTHER CAUSES OF HONEYCOMBING, PITTING OR PLANES OF WEAKNESS.
      C.2. THE PRACTICE OF MOVING CONCRETE FROM ONE POINT TO ANOTHER BY USE OF VIBRATORS IS EXPRESSLY FORBIDDEN. VIBRATORS SHALL BE USED TO CONSOLIDATE THE CONCRETE: NOT TO TRANSPORT IT. CARE SHALL BE TAKEN TO AVOID SEPARATION OF MATERIALS BY OVER-VIBRATING.

11. CONCRETE FINISHING:
   A. FINISH EXPOSED CONCRETE SURFACES TRUE AND EVEN, FREE FROM OPEN OR ROUGH AREAS, DEPRESSIONS OR PROJECTIONS.
   B. PROVIDE AN EVEN BROOM FINISH TO SLAB SURFACE.
   C. JOINTS AND EDGES ON UNFORMED SURFACES THAT WILL BE EXPOSED TO VIEW SHALL BE CHAMFERED OR FINISHED WITH MOLDING TOOLS.

12. CURING AND PROTECTION:
   A. CURE CONCRETE IN ACCORDANCE WITH ACI 308 STANDARD PRACTICE FOR CURING CONCRETE.

13. DEFECTIVE CONCRETE:
   A. CONCRETE NOT CONFORMING TO REQUIRED LINES, DETAILS, DIMENSIONS, TOLERANCES OR SPECIFIED REQUIREMENTS WILL BE DESIGNATED AS DEFECTIVE CONCRETE.
   B. REPAIR OR REPLACEMENT OF DEFECTIVE CONCRETE WILL BE DETERMINED BY THE PROJECT ENGINEER.
   C. DO NOT PATCH, FILL, TOUCH-UP, REPAIR, OR REPLACE EXPOSED CONCRETE EXCEPT UPON EXPRESS DIRECTION OF THE PROJECT ENGINEER FOR EACH INDIVIDUAL AREA.

14. FIELD QUALITY CONTROL:
   A. TESTING AND INSPECTION
      A.A. CONCRETE TESTING WILL BE PERFORMED AT THE DISCRETION OF THE ENGINEER.

GRADING NOTES AND SOIL BACKFILL:

1. THIS ITEM CONSISTS OF CONSTRUCTION OF THE DAM CREST EXTENSION AND BACKFILL NECESSARY FOR CONSTRUCTION OF THE EMERGENCY SPILLWAY.

2. CONTRACTOR SHALL PROVIDE ENGINEER SAMPLES OF PROPOSED FILL MATERIAL TO BE TESTED FOR STANDARD PROCTOR AND SIEVE ANALYSIS. THESE SOIL SAMPLES SHALL BE PROVIDED AT LEAST 2 WEEKS BEFORE CONTRACTOR COMMENCES EXTENSION OF DAM CREST AND BACKFILL NECESSARY FOR EMERGENCY SPILLWAY. ENGINEER SHALL PROVIDE RESULTS OF SOIL LABORATORY TESTS TO CONTRACTOR FOR USE IN THE FIELD.

3. GROUND SURFACE PREPARATION: REMOVE VEGETATION INCLUDING GRASS, ROOTS, AND SURFICIAL ORGANICS, DEBRIS, UNSATISFACTORY SOIL MATERIALS, OBSTRUCTIONS, AND DELETERIOUS MATERIALS FROM GROUND SURFACE PRIOR TO PLACEMENT OF FILLS. PLOW STRIP, OR BREAK UP SLOPED SURFACES STEEPER THAN 1 VERTICAL TO 2 HORIZONTAL SO THAT FILL MATERIAL WILL BOND WITH THE EXISTING SURFACE. WHEN EXISTING GROUND SURFACE HAS A DENSITY LESS THAN THAT SPECIFIED UNDER COMPACTION FOR PARTICULAR AREA CLASSIFICATION, BREAK UP GROUND SURFACE, PULVERIZE, MOISTURE CONDITION TO OPTIMIUM MOISTURE CONTENT, AND COMP0ACT TO REQUIRED DEPTH AND PERCENTAGE OF MAXIMUM DENSITY.

4. CONTRACTOR SHALL USE NATIVE SOIL FOR DAM EXTENSION. CONTRACTOR SHALL COMPACT EACH LIFT TO A MINIMUM OF 95% OF STANDARD PROCTOR MAXIMUM DRY DENSITY. WHERE SUBGRADE IS TOO DRY TO PERMIT A SUITABLE BOND FOR COMPACTED FILL, SCARIFY AND UNIFORMLY APPLY WATER TO SUBGRADE. PREVENT FREE WATER APPEARING ON SURFACE DURING OR SUBSEQUENT TO COMPACTION OPERATIONS. MOISTURE CONTENT OF FILL SHALL BE WITHIN MOISTURE CONTENT OF ONE PERCENT BELOW AND THREE PERCENT ABOVE THE OPTIMUM MOISTURE CONTENT FOR THE TYPICAL SOILS USED FOR FILL.

5. BACKFILL SHALL BE COMPLETED WITH SOIL FREE OF TOPSOIL, VEGETATION, LUMBER, METAL, REFUSE, ROCKS OR SIMILAR HARD OBJECTS LARGER THAN SIX INCHES IN GREATEST DIMENSION.

6. BACKFILLING OF:
   A. VERIFY FILL MATERIALS TO BE REUSED ARE ACCEPTABLE.
   B. GENERALLY, COMPACT SUBGRADE TO DENSITY REQUIREMENTS FOR SUBSEQUENT BACKFILL MATERIALS.
   C. BACKFILL MATERIALS IN FILL AREAS TO THE LINES AND GRADES SHOWN ON THE DRAWINGS.
   D. COMPLETE FILLING BY PLACING COMMON FILL IN LAYERS OR LIFTS NOT EXCEEDING 6 INCHES IN DEPTH.

7. CONTRACTOR SHALL USE TOPSOIL FOR UPPER TWO TO THREE INCHES OF SOIL FOR THE DOWNSTREAM SLOPE OF THE DAM AND OTHER AREAS TO BE FINISHED IN GRASS. CONTRACTOR SHALL USE FERTILE, FRIABLE, NATURAL, PRODUCTIVE SURFACE SOIL SUCH AS IS AVAILABLE ON SITE. TOPSOIL WILL BE FREE OF SUBSOIL, CLAY, STONES OR SIMILAR HARD OBJECTS LARGER THAN TWO INCHES IN GREATEST DIMENSION.

8. BEFORE COMPACTION, MOISTEN AND AERATE EACH LAYER AS NECESSARY TO PROVIDE OPTIMUM MOISTURE CIONTENT. COMPACT EACH LAYER TO REQUIRED PERCENTAGE OF MAXIMUM DRY DENSITY OR RELATIVE DRY DENSITY FOR EACH AREA CLASSIFICATION. DO NOT PLACE BACKFILL OR FILL MATERIAL ON SURFACES THAT ARE MUDDY, FROZEN OR CONTAIN FROST OR ICE.

9. COMPACT SUBGRADE AND EACH LAYER OF BACKFILL MATERIAL TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY TO A DEPTH OF 6" BELOW BOTTOM OF FINAL GRADE.

10. MOISTURE CONTROL WHERE SUBGRADE OR LAYER OF SOIL MATERIAL MUST BE MOISTURE CONDITIONED BEFORE COMPACTION, UNIFORMLY APPLY WATER TO SURFACE OF SUBGRADE OR LAYER OF SOIL MATERIAL APPLY WATER IN MINIMUM QUANTITY AS NECESSARY TO PREVENT FREE WATER FROM APPEARING ON SURFACE DURING OR SUBSEQUENT TO COMPACTION OPERATIONS.

11. REMOVE AND REPLACE, OR SCARIFY AND AIR DRY, SOIL MATERIAL THAT IS TOO WET TO PERMIT COMPACTION OTO SPECIFIED DENSITY.

12. SPREAD SOIL MATERIAL THAT HAS BEEN REMOVED BECAUSE IT IS TOO WET TO PERMIT COMPACTION. ASSIST DRYING BY DISCING, HARROWING OR PULVERIZING UNTIL MOISTURE CONTENT IS REDUCED TO A SATISFACTORY VALUE.

13. QUALITY CONTROL TESTING DURING CONSTRUCTION: ALLOW GEOTECHNICAL TESTING SERVICE TO INSPECT AND APPROVE EACH SUB-GRADE AND BACKFILL OR FILL LAYER BEFORE FURTHER BACKFILL OR CONSTRUCTION WORK IS PERFORMED. TEST SHALL BE PERFORMED EVERY 5,000 SQ. FT. OF AREA PER SIX-INCH LIFT OR AS DIRECTED BY A REGISTERED GEOTECHNICAL ENGINEER.

14. GEOTECHNICAL SPECIFICATIONS DEPICTED HERON ARE GUIDELINES ONLY AND SHOULD BE VERIFIED BY A REGISTERED GEOTECHNICAL ENGINEER PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. RECOMMENDATIONS FROM A REGISTERED GEOTECHNICAL ENGINEER (IF ANY) SHALL SUPERCEDE THE ABOVE REFERENCED SPECIFICATIONS.

15. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER OF THE DISCOVERY OF ANY GROUNDWATER, SUBSURFACE SEEPAGE OR SPRINGS DURING THE COURSE OF CONSTRUCTION. IT SHALL BE THE RESPONSIBILITY OF THE OWNER TO CONSULT WITH A REGISTERED GEOTECHNICAL ENGINEER TO INSPECT THE SITE, AND TO MAKE ANY RECOMMENDATIONS REGARDING EVIDENCE AND REMEDIATION (IF ANY) OF SAID SUBSURFACE WATERS.

16. ALL CUT AND FILL SLOPES SHALL BE LESS THAN OR EQUAL TO 2:1.

SEEDING AND CLEANUP

1. SEEDING, FERTILIZING, AND MULCHING COMPOSITION AND PLACEMENT MUST COMPLY WITH THE SPECIFICATIONS AS SHOWN ON DRAWINGS.

2. CONTRACTOR SHALL REMOVE ALL SURPLUS EXCAVATED MATERIAL, RUBBISH AND OTHER CONSTRUCTION DEBRIS FROM THE WORK AREA. THE OWNER SHALL APPROVE THE CONDITION OF THE FORMER WORK AREA PRIOR TO ACCEPTANCE OF A SATISFACTORY COMPLETION OF THE PROJECT.

FILLING OF THE LAKE AFTER CONSTRUCTION

BASED ON THE TOPOGRAPHY OF THE LAKE AND ITS OVERALL SIZE, THE LAKE WILL REFILL ITSELF NATURALLY DURING RAIN EVENTS. IT IS ESTIMATED THAT DURING A 10-YEAR STORM, THE LAKE WILL FILL ITSELF TO THE WATER SURFACE ELEVATION OF 606.00 IN APPROXIMATELY 1.3 HOURS. REFILLING OF THE DAM CANNOT BE STARTED UNTIL APPROVAL IS GIVE BY THE SOUTH CAROLINA DAM SAFETY SECTION.

CITY OF YORK
PO BOX 500
10 N. ROOSEVELT ST. YORK, SC 29745

REVISIONS

REV.	DATE	COMMENTS

PROJECT #	1210035-01
DATE:	DECEMBER, 2022
DESIGN BY:	DW
DRAWN BY:	DW
APPROVED:	KAA
SCALE:	AS SHOWN

CDG
4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
Phone: 704-394-6913
www.cdge.com
License No. C-4973

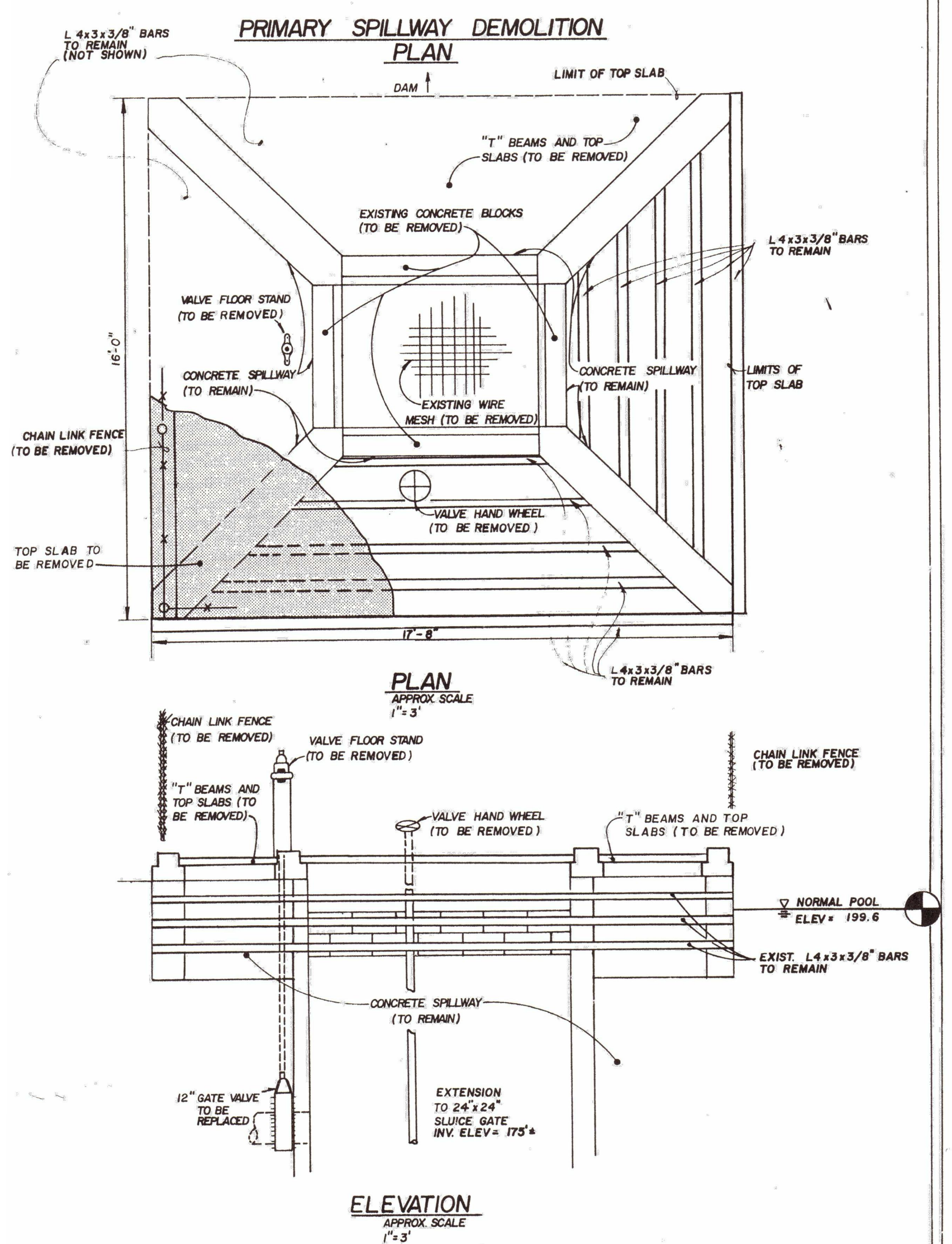
SOUTH CAROLINA C.O.A. SEAL:
SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION CDG, INC. No. 20101031

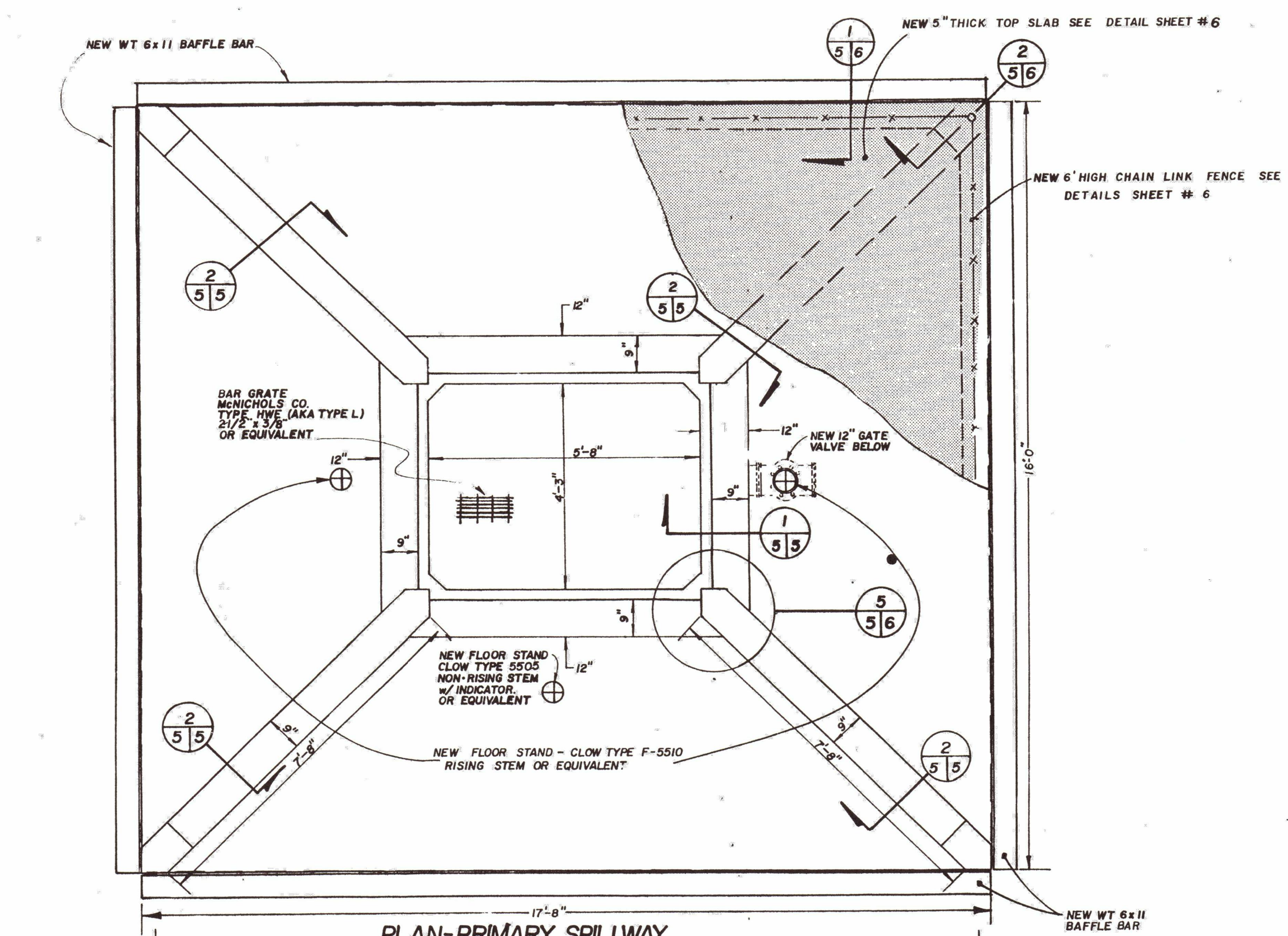
ENGINEER'S SEAL:
SOUTH CAROLINA PROFESSIONAL ENGINEER No. 27260
3-22-23

CALDWELL LAKE DAM IMPROVEMENTS
CALDWELL LAKE DAM
YORK, YORK COUNTY, SOUTH CAROLINA

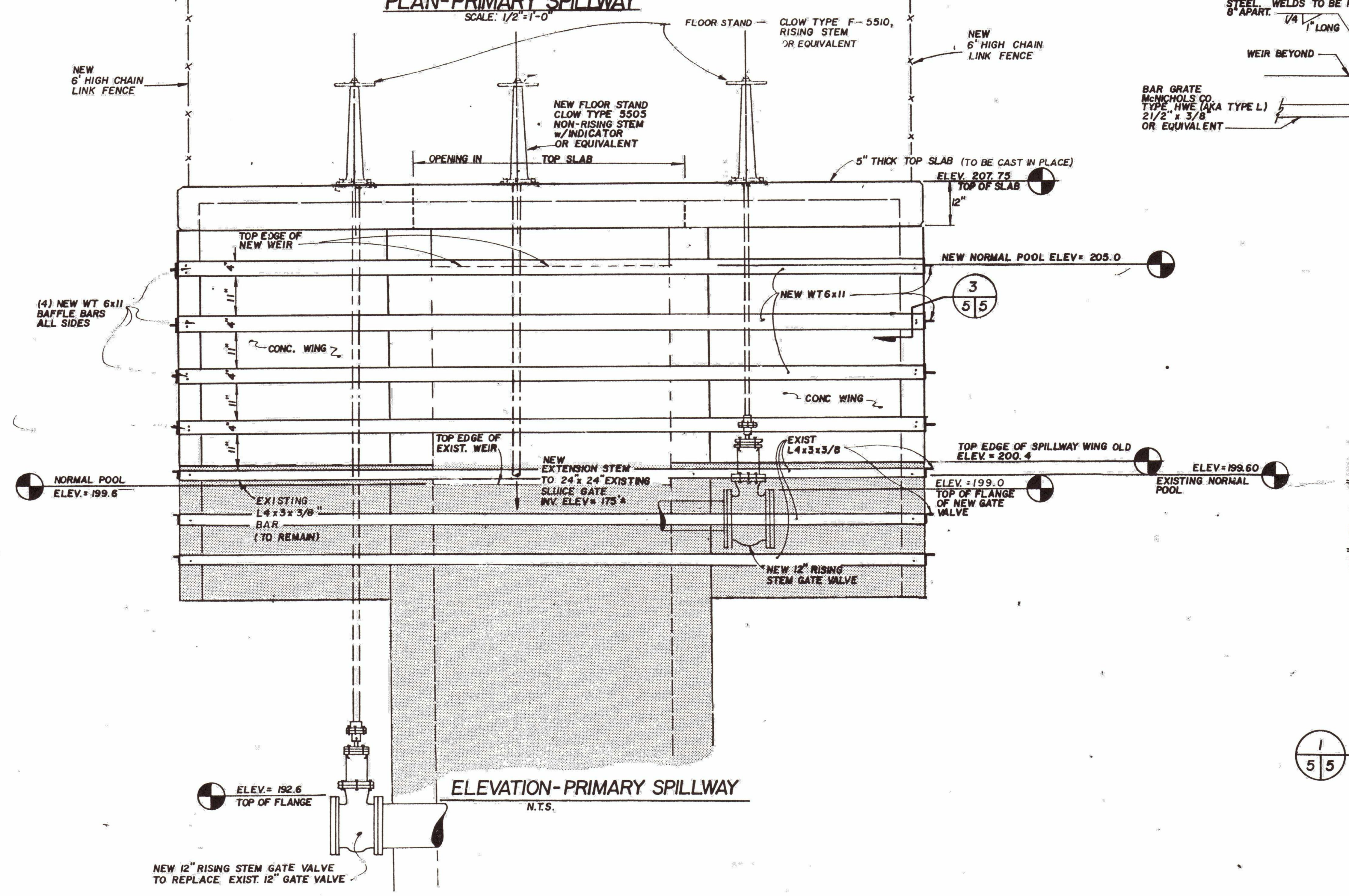
SHEET TITLE: SPECIFICATIONS

DRAWING NO: 14

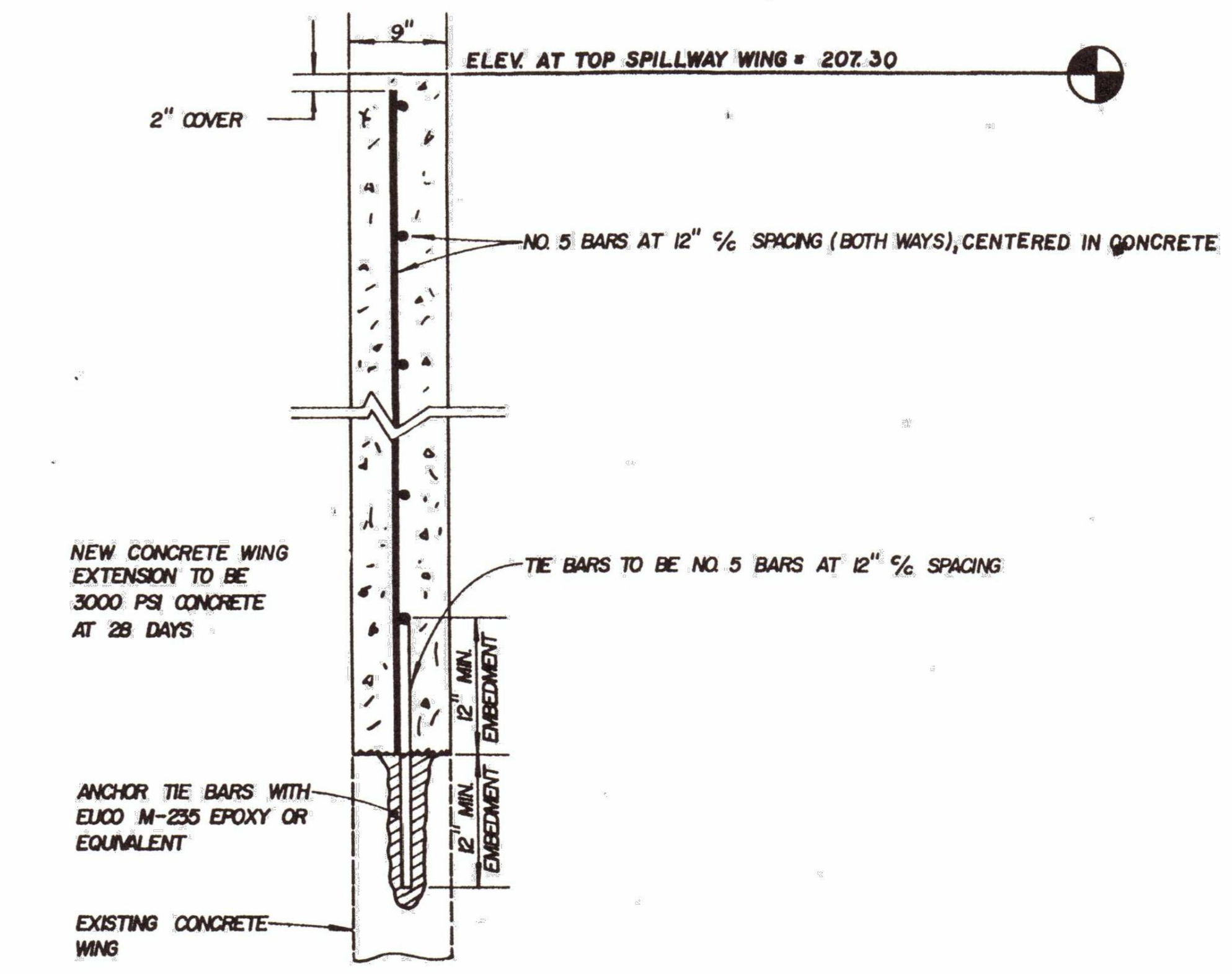




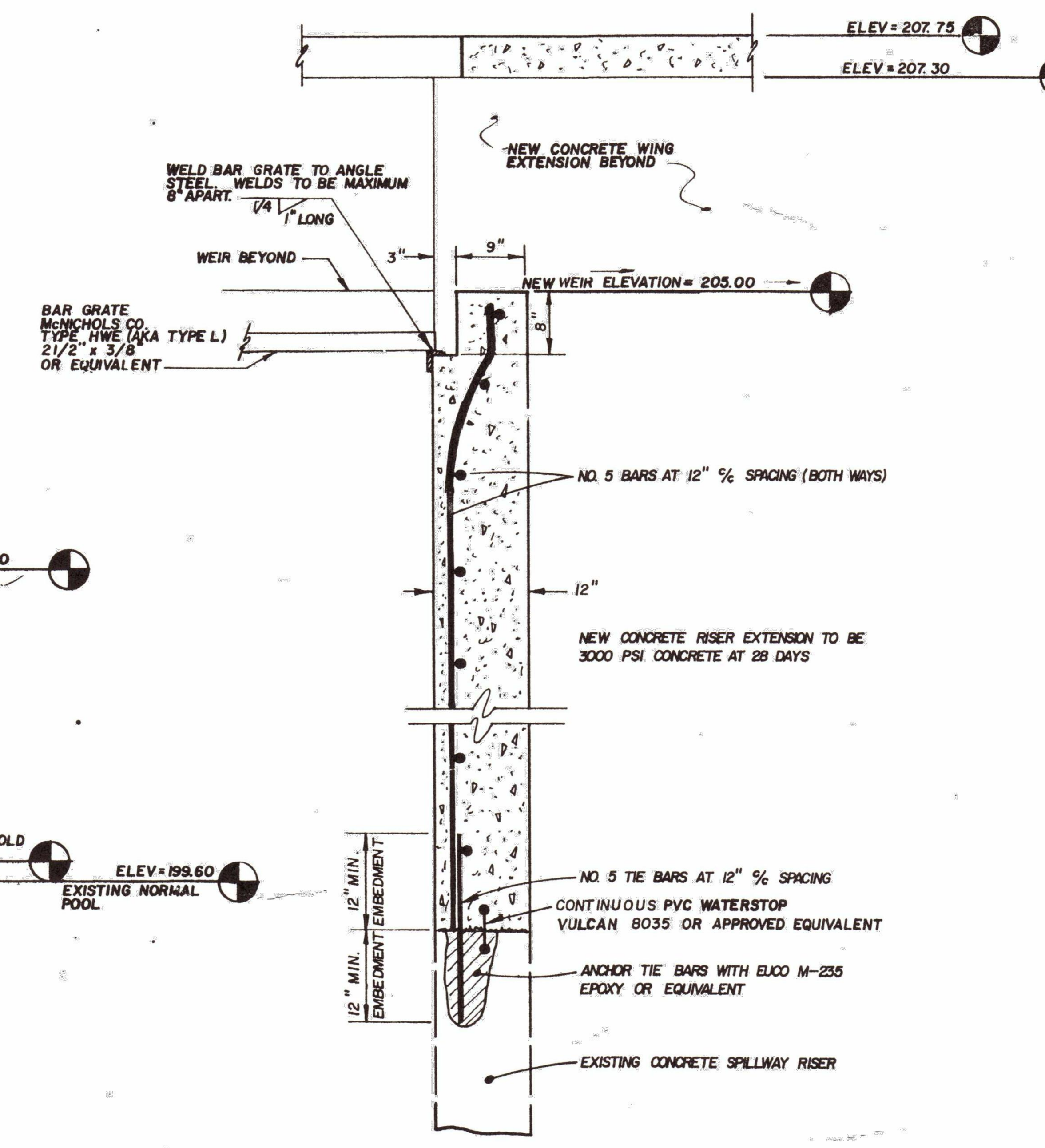
PLAN-PRIMARY SPILLWAY
SCALE: 1/2"=1'-0"



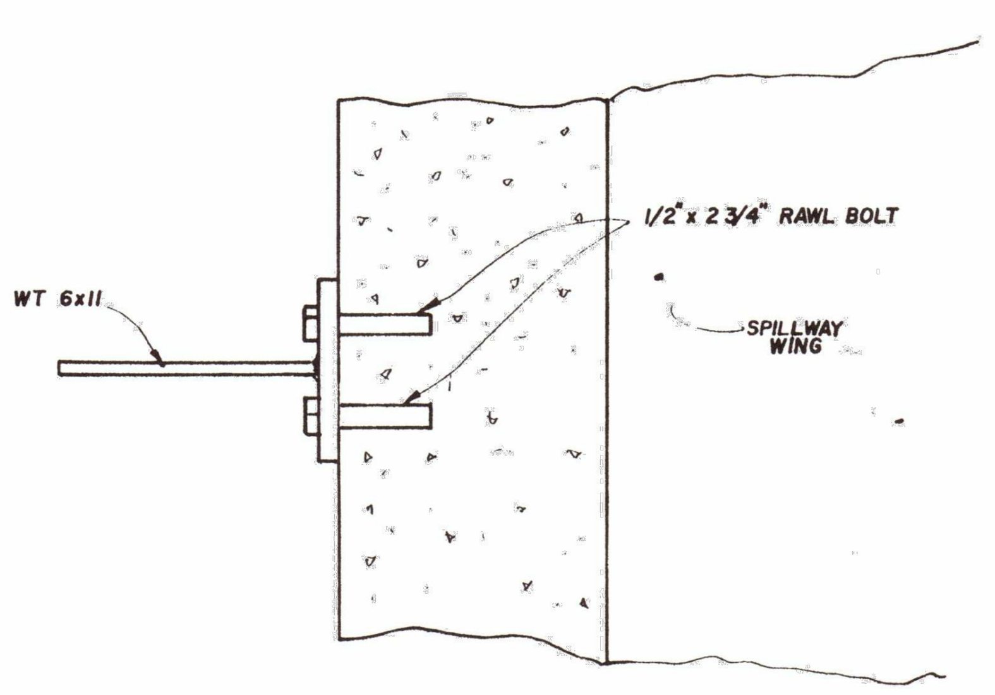
ELEVATION-PRIMARY SPILLWAY
N.T.S.



2/5 5 PRIMARY SPILLWAY WING
SCALE: 3/4"=1'-0"



1/5 5 MAIN WALL EXTENSION
SCALE: 3/4" = 1'-0"



3/5 5 BAFFLE BAR CONNECTION
SCALE 3" = 1'-0"

FOR INFORMATIONAL PURPOSES ONLY
ALL ELEVATIONS ARE "RELATIVE" AND NOT NAVD 88.

#	DATE	REVISION	BY

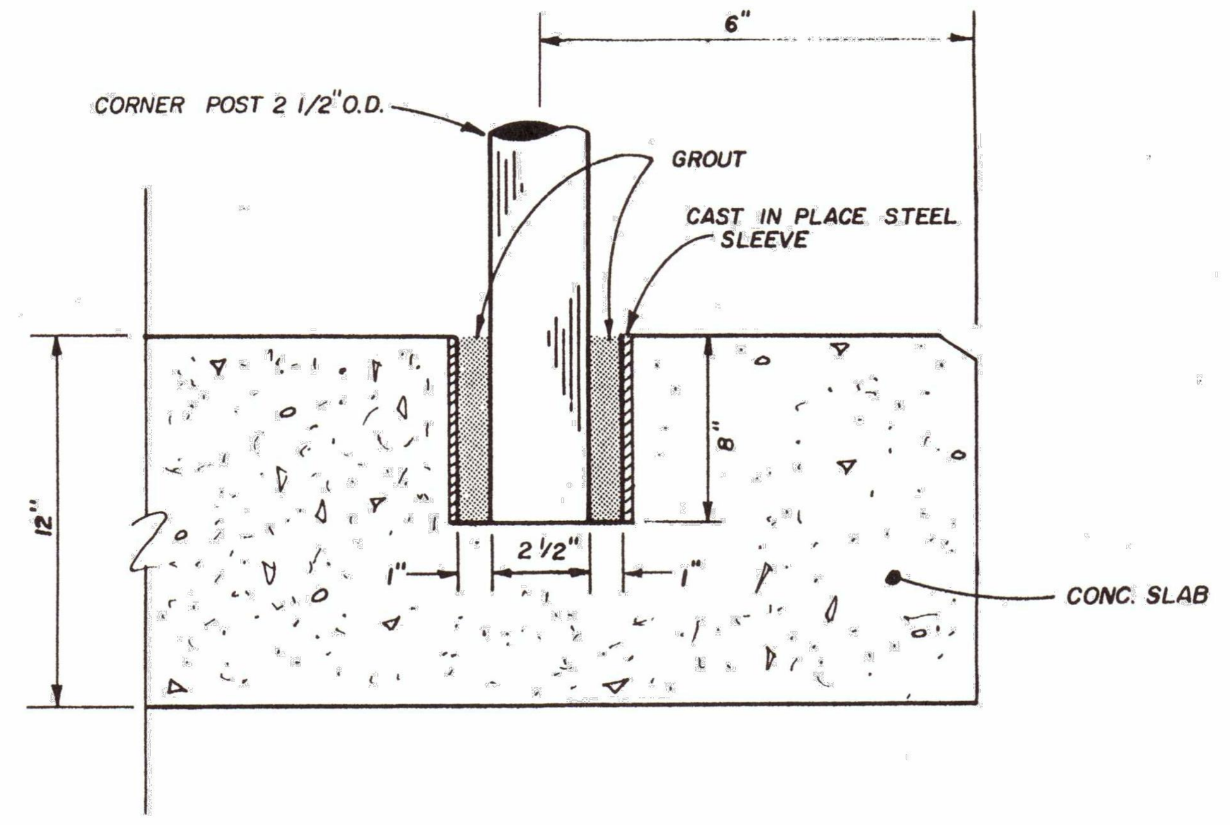
Williams Engineering, Inc.
Suite 101, SCN Center
100 Dave Lyle Boulevard
Rock Hill, S.C. 29730-4552
(803) 324-3192
FAX (803) 324-8919

SPILLWAY DETAILS
LAKE CALDWELL
YORK COUNTY, S.C.

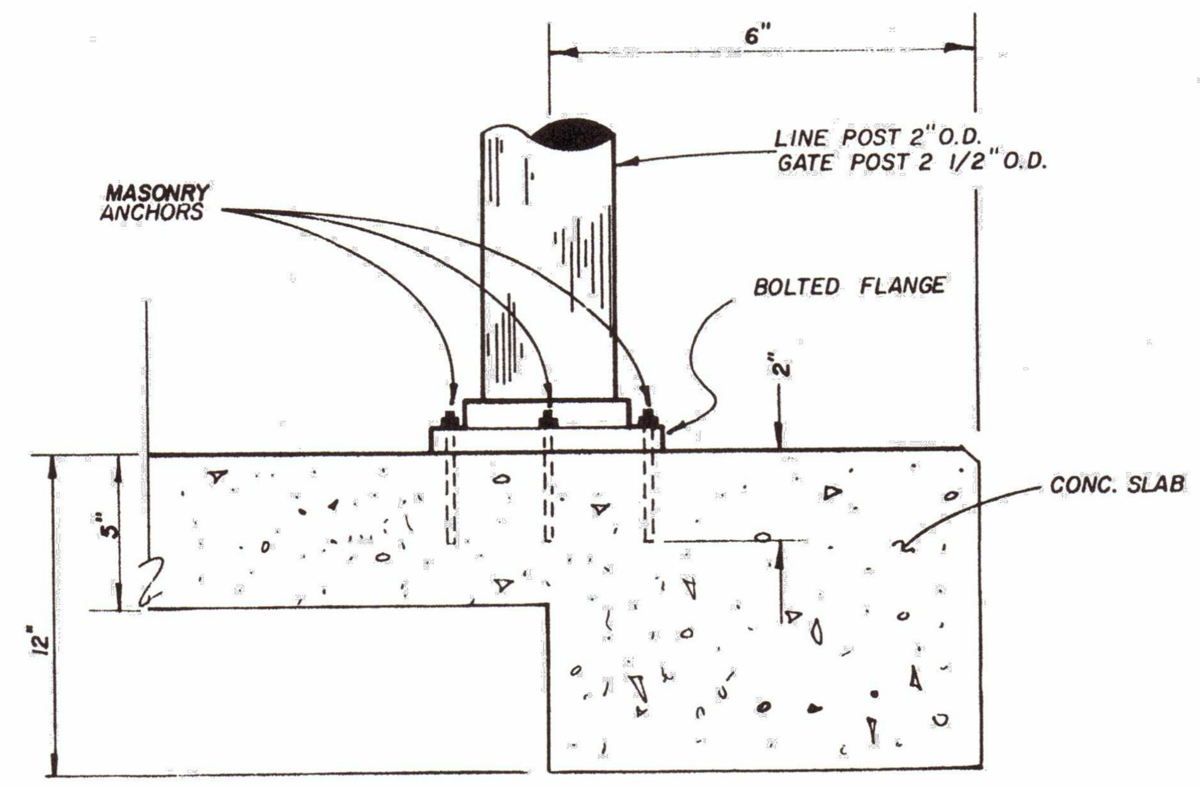
SCALE: AS SHOWN
DATE: 10-3-91
DRAWN BY: JDM
CHECKED BY:
SHEET 5 OF 6
JOB NO: 88246

CALDWELL LAKE DAM IMPROVEMENTS
CALDWELL LAKE DAM
YORK, YORK COUNTY, SOUTH CAROLINA

SHEET TITLE: EXISTING PRINCIPAL SPILLWAY - 1
DRAWING NO: 15

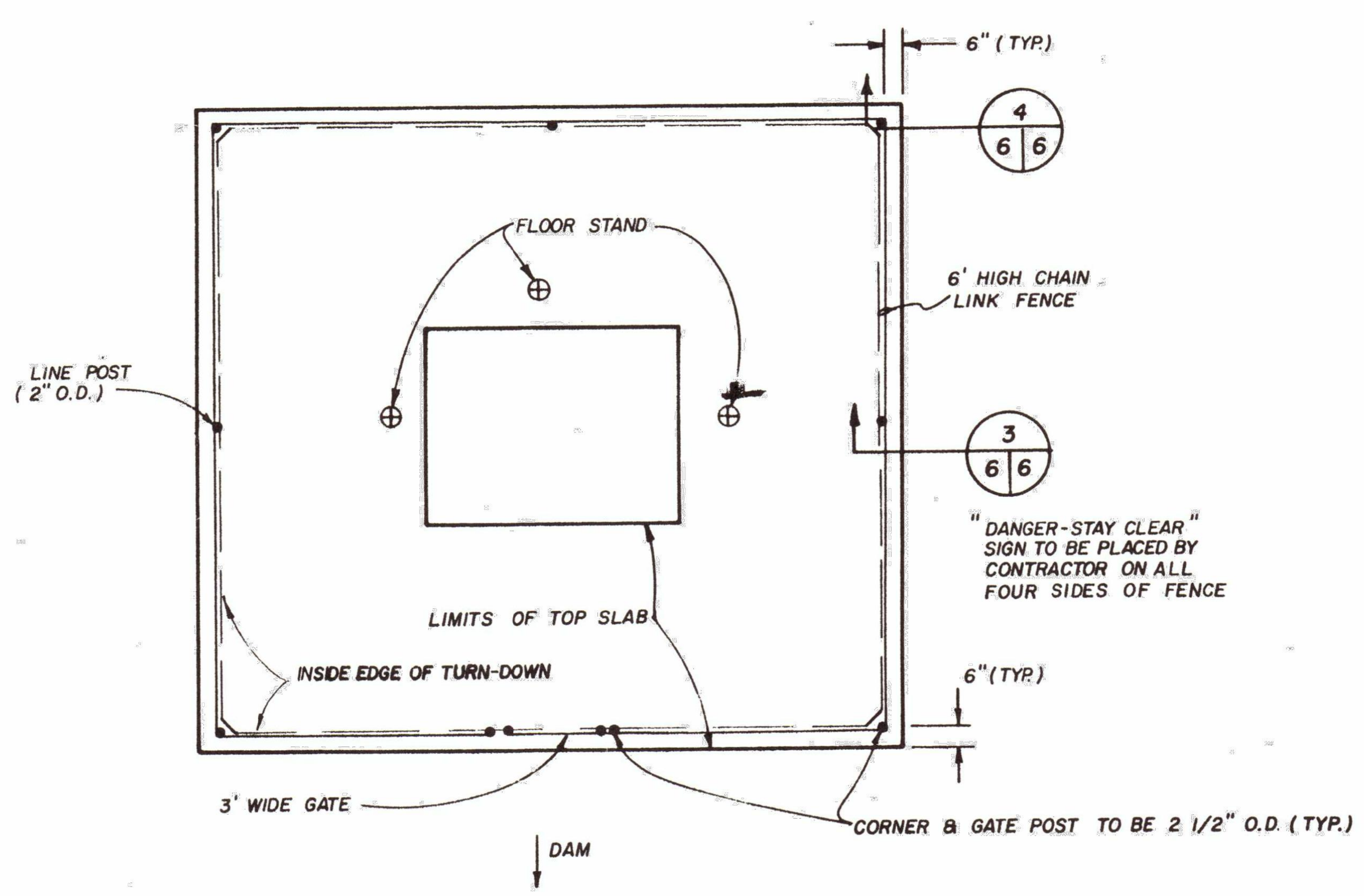


4 | 6 6 CORNER POST CONNECTION DETAIL



3 | 6 6 GATE & LINE POST CONNECTION DETAIL

NOT TO SCALE

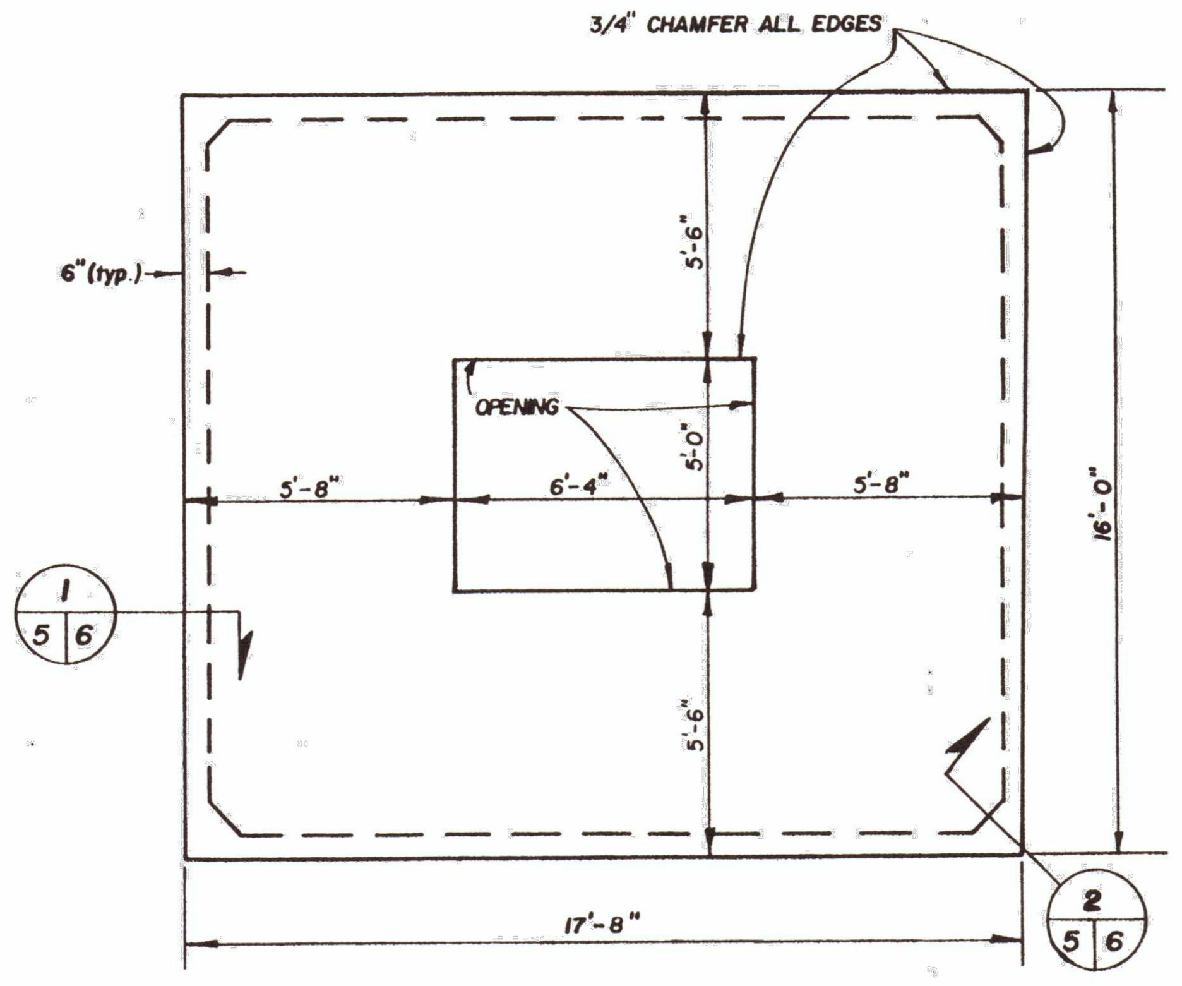


SECURITY FENCE PLAN - PRIMARY SPILLWAY

SCALE: 1/4" = 1'-0"

NOTE: FENCE TO BE TOPPED BY THREE STRANDS OF BARBED WIRE, ANGLED OUTWARD.

FOR INFORMATIONAL PURPOSES ONLY
ALL ELEVATIONS ARE "RELATIVE" AND NOT NAVD 88.

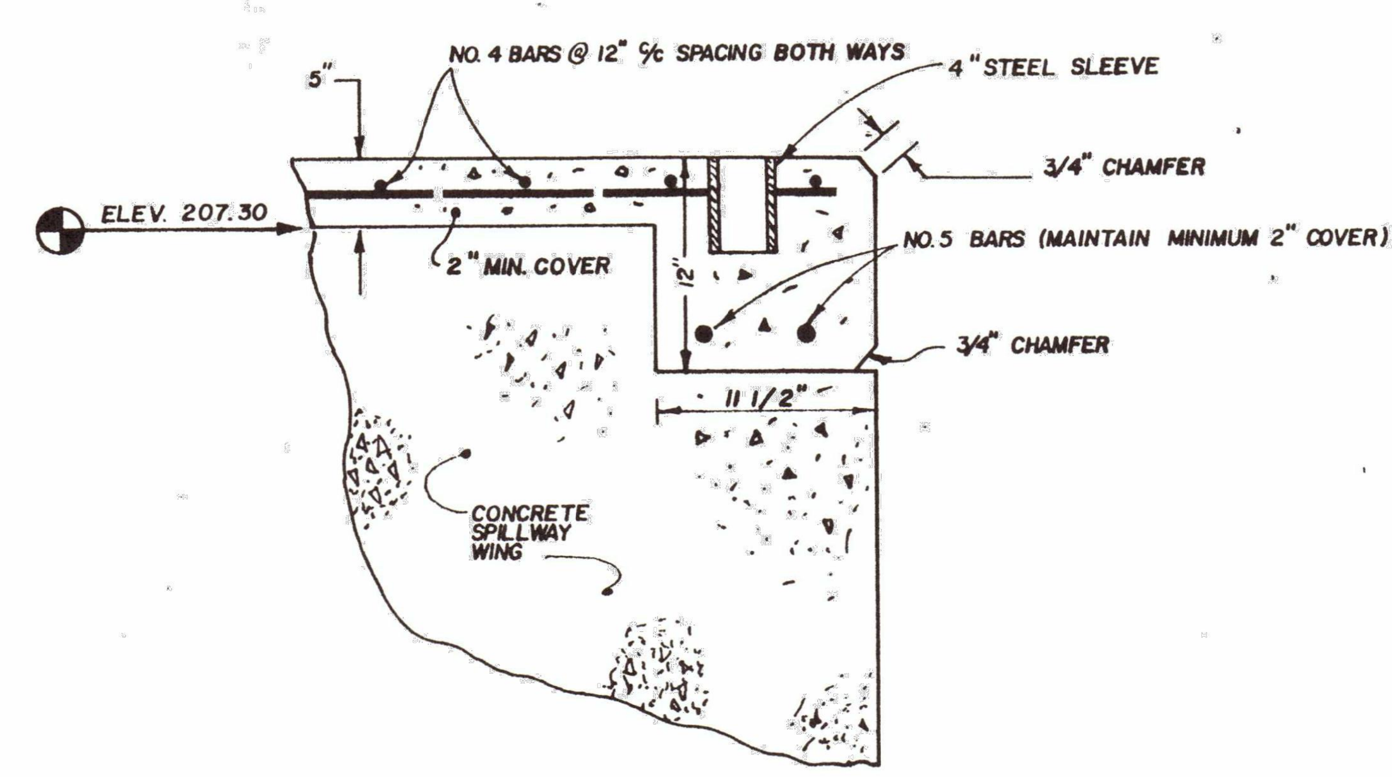


TOP SLAB PLAN @ PRIMARY SPILLWAY

SCALE: 1/4" = 1'-0"

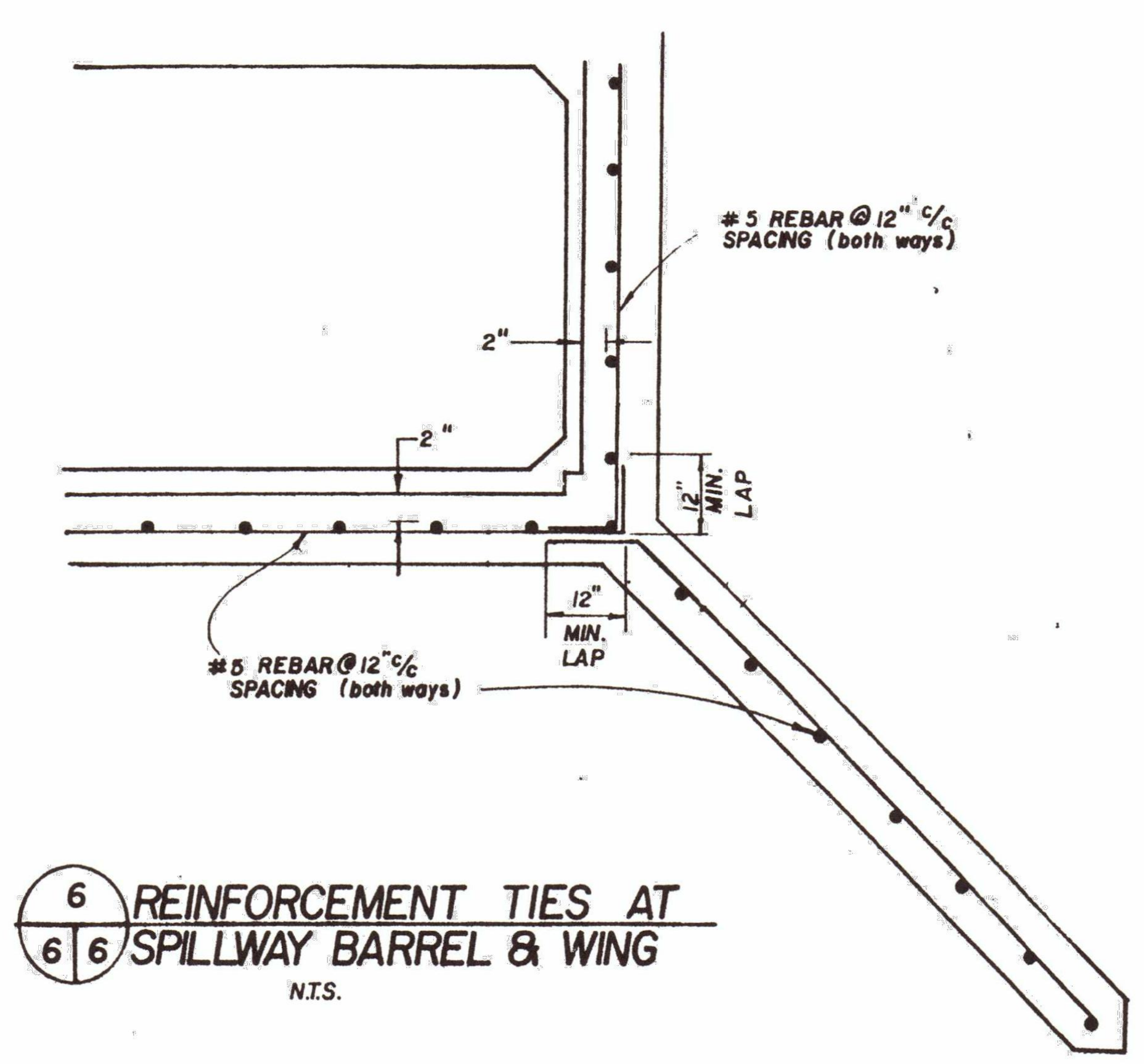
*CHAIN LINK FENCE NOT SHOWN

*CHAIN LINK FENCE NOT SHOWN



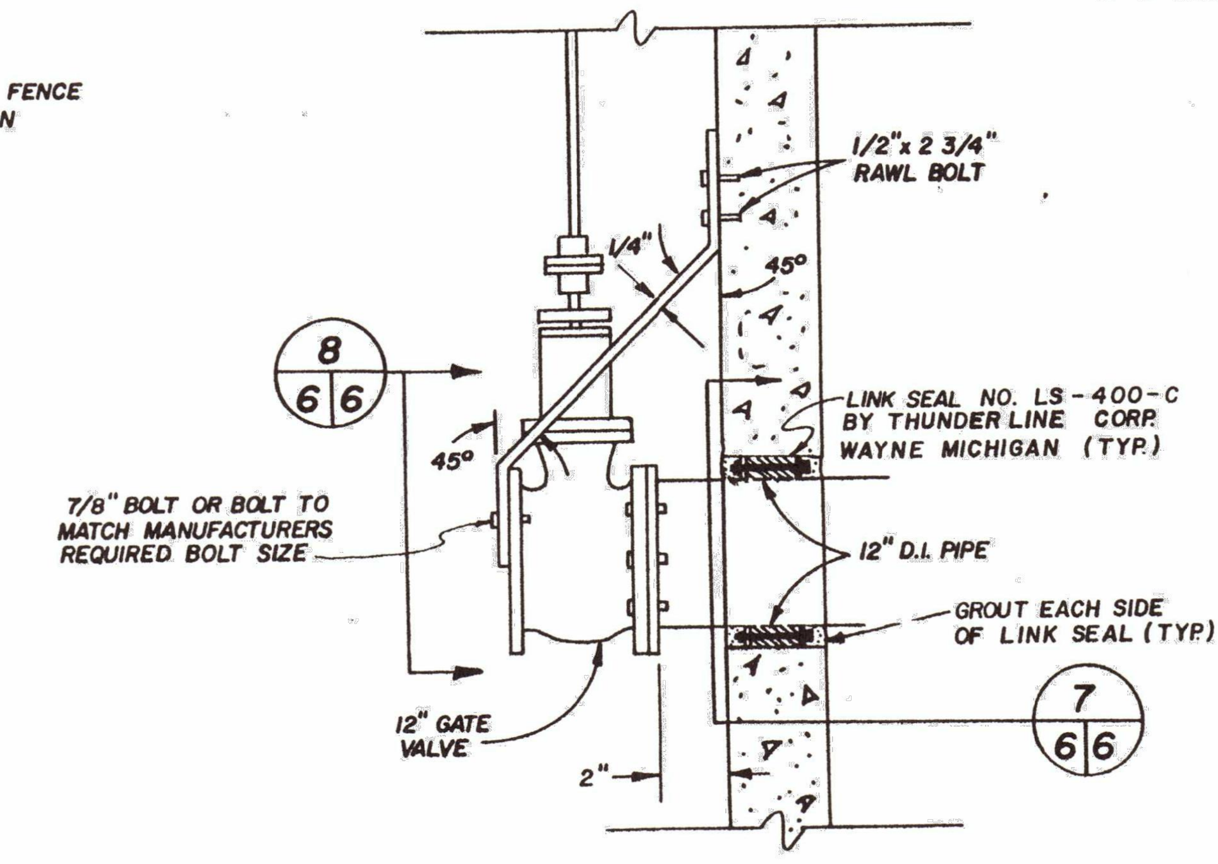
2 | 5 6 CORNER AT NEW TOP SLAB

N.T.S.



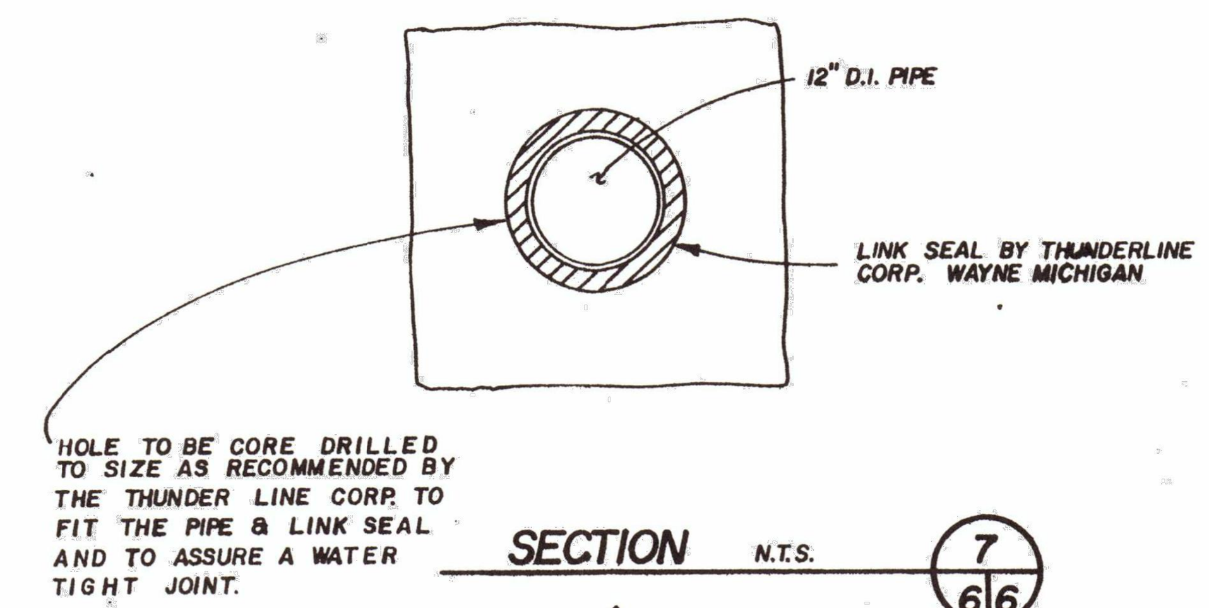
6 | 6 6 REINFORCEMENT TIES AT SPILLWAY BARREL & WING

N.T.S.

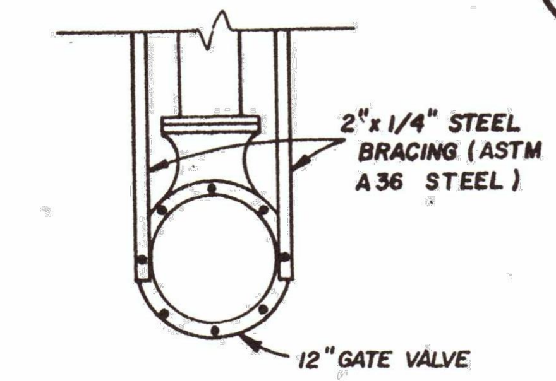


NEW VALVE INSTALLATION

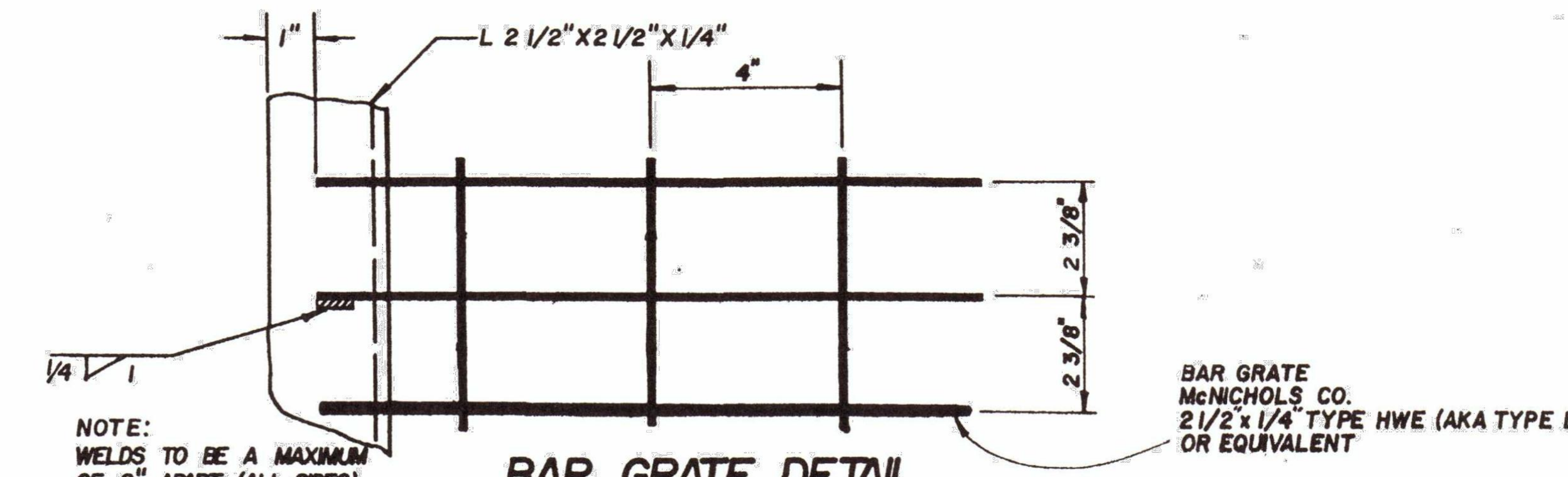
N.T.S.



SECTION N.T.S. 7 | 6 6

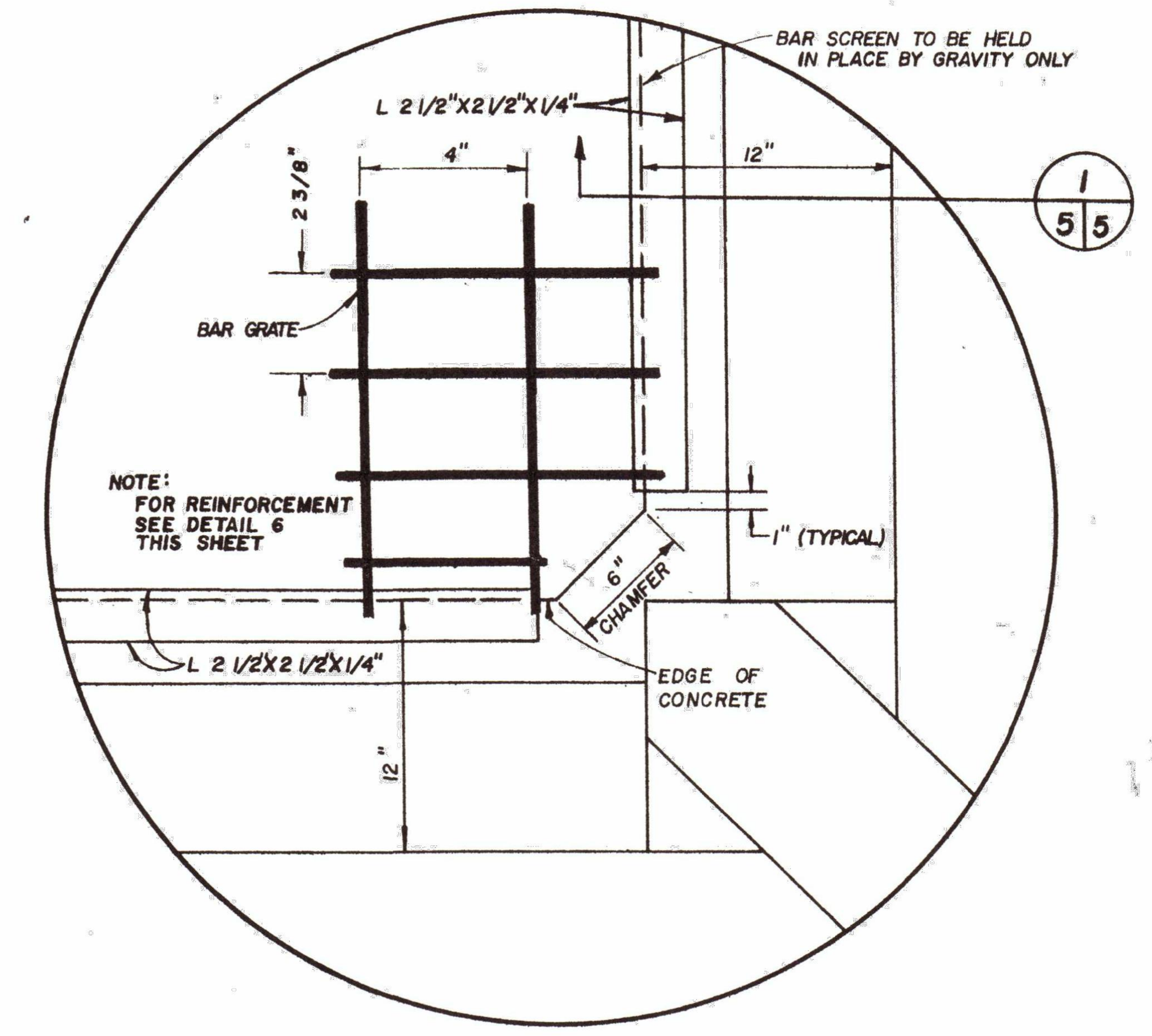


SECTION N.T.S. 8 | 6 6



BAR GRATE DETAIL

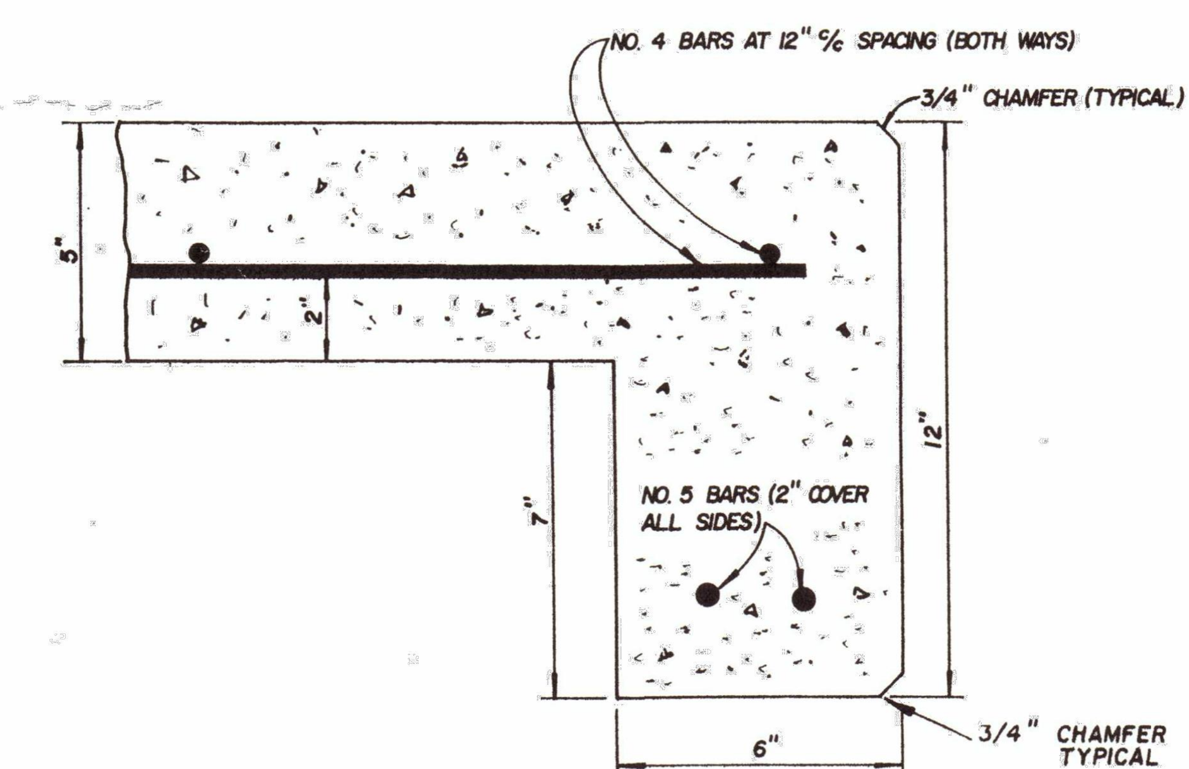
SCALE: 3" = 1'-0"



5 | 5 6 BLOW-UP DETAIL @ PRIMARY SPILLWAY

SCALE: 1 1/2" = 1'-0" (SHOWN WITH TOP SLAB REMOVED)

*CHAIN LINK FENCE NOT SHOWN



1 | 5 6 EDGE AT NEW TOP SLAB

SCALE: 3" = 1'-0"

#	DATE	REVISION	BY

Williams Engineering, Inc.
Suite 101, SCN Center
100 Dave Lyle Boulevard
Rock Hill, S.C. 29730-4552
(803) 324-3192
FAX (803) 324-8919

SPILLWAY DETAILS	SCALE: AS SHOWN
	DATE: 10 / 3 / 91
LAKE CALDWELL	DRAWN BY: JM / JC
	CHECKED BY:
YORK COUNTY, S.C.	SHEET 6 OF 6
	JOB NO: 8824

CALDWELL LAKE DAM IMPROVEMENTS
CALDWELL LAKE DAM
YORK, YORK COUNTY, SOUTH CAROLINA

SHEET TITLE: EXISTING PRINCIPAL SPILLWAY - 2

DRAWING NO: 16